ImmunizeBC

A STRATEGIC FRAMEWORK FOR IMMUNIZATION IN B.C.

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Executive Summary

Every day, immunization saves lives and makes it possible for British Columbians to live free of the illness and disability associated with many communicable diseases. The British Columbia Immunization Strategic Framework has been developed to stimulate collective action across the health system and ensure that all British Columbians understand the importance of immunization for themselves, their families, and vulnerable populations, and benefit from the many vaccines that are now available.

The Ministry of Health, the British Columbia Centre for Disease Control (BCCDC), regional health authorities, and health care providers across the province all have a role to play in ensuring the people of British Columbia are able to protect and promote their individual and community health through immunization. The Ministry of Health, in collaboration with BCCDC, regional health authorities, and service provider representatives, has developed this document to complement, guide, and support both health authorities—in public health, occupational health, acute care, and residential care settings—and health system partners, such as private clinics and general practitioners, to together deliver optimal immunization services in B.C.

A committee of immunization and public health experts from across the province developed an initial draft of this framework. Extensive consultations were then conducted across British Columbia, with input from health authorities, family physicians, Citizenship and Immigration Canada, BC Corrections, First Nations and Inuit Health (Health Canada), and representatives from the Aboriginal community. The framework was then finalized and priority actions were identified—areas where immediate attention is needed. Addressing these priority actions will lay a solid foundation for the future.

Since 2004/05, the National Immunization Strategy has provided approximately $39 million into British Columbia's immunization system. Building on this investment, the framework will be implemented from 2007 through 2010. The Ministry of Health, in conjunction with its partners, will monitor and report on progress annually, beginning in 2008.

Building on the framework's vision and goals, and informed by local, provincial, and national data, regional health authorities and BCCDC are invited to examine options, establish priorities, set objectives and targets, elaborate strategic plans and service plans, and formulate monitoring and evaluation frameworks. The Ministry of Health has committed to implement actions in its areas of responsibility, and to work collaboratively with the regional health authorities and BCCDC to further the framework's vision and goals.

Immunize BC

A STRATEGIC FRAMEWORK FOR IMMUNIZATION IN B.C.

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Introduction: the Health System Perspective

The immunization program is a foundational component of British Columbia's health system. Immunization is a life-saving and cost-effective intervention that prevents needless suffering associated with sickness, disability, and death. It benefits all people—not only through improvements in health and life expectancy but also through its social and economic impact at the global, national, and community level.

One hundred years ago, infectious diseases were the leading cause of death worldwide. Today in Canada, infectious diseases now cause less than five per cent of all deaths, due in large part to the widespread success of immunization programs (Canadian Public Health Association, 2001). In today's increasingly interdependent world, acting together against vaccine-preventable diseases of public health importance and preparing for the possible emergence of illnesses with pandemic potential contribute significantly to improving and sustaining the health and security of British Columbians. British Columbia's immunization program is an important component in the global campaign to eradicate vaccine-preventable diseases and the associated sickness, disability, and death. Preventing disease is also a sound fiscal investment, as it improves quality of life and reduces demand on the health system. A healthy population is critical to a healthy economy. Continued success requires a heightened vigilance and preparedness to respond to changing circumstances, including the emergence of new disease strains, and the ability to prevent and respond to outbreaks.

www.bccdc.org

At the national level, British Columbia is actively supporting the National Immunization Strategy to ensure the needs and interests of British Columbians are reflected, and that British Columbia is well-positioned to respond to immunization in the global context. The National Immunization Strategy was endorsed in 2004 by the Conference of Deputy Ministers of Health, and focuses on enhancing immunization programming activities such as surveillance of vaccine-associated adverse events and vaccine-preventable diseases, coordinating common approaches to immunization registries, improving vaccine procurement processes, strengthening immunization research activities, developing approaches to special populations, and expanding public and professional education. Accordingly, British Columbia plans, funds, and delivers immunization programs that both serve the needs of British Columbians and support the direction identified in the national strategy.

Within the province, British Columbia's immunization program is linked with other initiatives designed to strengthen the public health system—including Core Public Health Functions [1] and *the Public Health Act* Renewal Project [2].

The framework's mission is to improve the health of British Columbians by continuing to reduce the incidence of vaccine-preventable communicable diseases and the associated impact of disease, disability, and death. This mission will be achieved through the implementation of four goals, each supported by strategies and objectives:

1. Increase the uptake of current and future recommended vaccines to reach select provincial and National Immunization Strategy targets by 2010.

2. Ensure the BC immunization program is supported by the most current, evidence-based information on the status of vaccine-preventable infectious diseases in BC and on emerging sources of infectious disease risk from other parts of the world.

3. Build the capacity of the immunization program to ensure long-term sustainability.

4. Promote quality across the immunization system to achieve improved system performance.

Six sets of principles and values strengthen and support the vision for immunization in BC, and include: building capacity; building and sustaining partnerships and fostering ownership and responsibility; ensuring accessibility; ensuring accountability, efficiency, and cost-effectiveness; using evidence; and embracing innovation.

This framework provides a common platform for all immunization partners, supports a comprehensive approach to planning, and urges a broader approach to the immunization program. It focuses on new vaccines and technologies, and on ways of strengthening the current system. It also emphasizes the need to strengthen surveillance and other measurement systems to identify high-risk and underserved populations, monitor progress, and ensure accountability.

Achieving National Immunization Strategy goals will take considerable effort across the health system. Over the past decade, coverage levels worldwide have stagnated at sub-optimal levels (Global Alliance for Vaccines and Immunization [GAVI], 2005). Globally, target rates for immunization coverage are generally set around 95 per cent or higher. British Columbia's two-year-old immunization rates have increased from 69 per cent in 2004/05 to 74 per cent in 2005/06 (see Table 1) [3] (Ministry of Health, 2006). Raising British Columbia's two-year-old rate to the ambitious national target of 95 per cent by 2010 requires comprehensive strategies that engage the public, decision makers, and service providers to ensure immunization remains a priority.

Table 1: British Columbia Immunization Performance Measures

PERFORMANCE MEASURES		BASELINE	2005/06 ACTUAL	2006/07 TARGET	2007/08 TARGET	2008/09 TARGET	LONG-TERM TARGET
Two-year-olds with up-to-date immunizations [i]		69% [ii] (2004/05)	74% (target met) [i]	67.9% [iii]	3.0 point increase over prior year	3.0 point increase over prior year	93% (2015)
Influenza immunization for residents of care facilities		91.8% (2004/05)	92.4% (target met)	Maintain at or above 90%	Maintain at or above 90%	Maintain at or above 90%	Maintain at or above 90%
Influenza immunization for health care workers	Long-Term Care Facilities	Set at Health Authority level	By Health Authority	Increase towards/ maintain at target	Increase towards/ maintain at target	Increase towards/ maintain at target	80%
	Acute Care Facilities	Set at Health Authority level	By Health Authority	Increase towards/ maintain at target	Increase towards/ maintain at target	Increase towards/ maintain at target	80%

[i] The BCCDC has been given the responsibility for data collection for this measure and is developing new reporting methodology to incorporate and improve data quality.

[ii] For 2005/06 Annual Report, the Ministry of Health reported the 2004 rate of 69% based on partial data (Vancouver Island, Northern, and Interior regions). The 2005/06 actual of 74% is also based upon this data.

[iii] The 2006/07 target of 67.9% is based on 4 of 5 regional health authorities reporting. Fraser Health, along with Vancouver Island, Northern, and Interior, is now included in the measure.

IMMUNIZATION AND ABORIGINAL BRITISH COLUMBIANS

While immunization rates among Aboriginal British Columbians are comparable to the general population, the complexity of on-reserve and off-reserve delivery mechanisms requires ongoing attention to sustain effective partnerships. Service delivery to on-reserve Aboriginal communities is the responsibility of Health Canada, and immunization services are delivered by the First Nations and Inuit Health or by the communities themselves. In some areas, First Nations communities work with the local health authority's public health nurses to deliver immunization services. Regardless of the method of delivery, sustaining optimal immunization rates among Aboriginal British Columbians, especially among young families who move between on-reserve and off-reserve communities, requires close collaboration at both the community and health system levels.

Immunization in British Columbia

"Over the last three years, your government has more than doubled funding for vaccinations. It has expanded childhood immunization programs and influenza vaccination programs to help infants, their parents, and seniors."

Government of British Columbia, Throne Speech, 2003

A robust immunization program is a cornerstone of good population health. British Columbia has an exceptionally comprehensive immunization program. The ambitious goals Canadian jurisdictions proposed through the National Immunization Strategy (see Table 2) are within reach—this framework recognizes the need to sustain widespread public acceptance of prevention, foster public demand for immunization, and sustain an appropriate infrastructure.

Since the introduction of the first vaccine programs in BC we have seen a profound reduction in the morbidity and mortality associated with infectious diseases. No other medical intervention has contributed so much to population health. In BC, the first publicly funded vaccine was introduced in 1907 and now 100 years later, the BC immunization schedule is comprised of vaccines that protect against 14 infectious diseases including diphtheria, pertussis, tetanus, polio, *haemophilus influenzae* type b, hepatitis A and B, meningococcal disease, pneumococcal disease, measles, mumps, rubella, varicella, and influenza. Four new vaccine programs have been introduced since 2003 alone: pneumococcal, meningococcal group C, and varicella in the infant program and acellular pertussis in the adolescent program. These vaccines are offered to a variety of age groups in settings that include child health clinics, physicians' offices, institutions, and schools. Many more vaccines (e.g., human papillomavirus, rotavirus, herpes simplex virus) are under development—BC's immunization program will continue to weigh the costs and benefits associated with the introduction of new vaccines for the foreseeable future.

New Vaccines on the Horizon

Mid-term (2–6 years): human papillomavirus (HPV), nasal influenza vaccine, tolerizing vaccine, other meningococcal vaccine, Group A streptococcus, Group B streptococcus, respiratory syncytial virus (RSV) for the elderly

Long-term (7–10 years): RSV for infants, parainfluenza virus (PIV), non-typeable Haemophilus influenzae and other otitis media pathogens, herpes simplex virus (HSV), hepatitis C virus, human immunodeficiency virus (HIV), SARS

Table 2: Progress in Achieving, Reducing, or Eliminating Diseases in British Columbia

DISEASE	NATIONAL GOALS/ TARGETS	STATUS	FACTS
Diphtheria	Eliminate indigenous cases by 1997.	Achieved	Between 1998 and 2005, one case of indigenously acquired acute diphtheria was reported (in 1999).
Invasive Hib Infections	Achieve and maintain absence of preventable cases in children by 1997.	Achieved	In 2005, one case of invasive Hib disease was reported in a 16 month old child who had received three prior doses of the vaccine in infancy. Prior to the introduction of Hib vaccine, there were more than 100 cases of invasive Hib disease each year, mostly in young children.
Hepatitis B	Reduce prevalence of indigenously acquired chronic infections in children and young adults by 90% by 2015.	Not Available	There were no acute cases in persons aged 19 years and younger in 2005. Results by 2015 are yet to be assessed.
Measles	Achieve incidence of less than 1 per 100,000 by 2000.	Achieved	In 2005, two cases of measles were reported in sisters, one of whom had acquired the infection outside of Canada. The incidence of measles in BC has been below 1 per 100,000 since 2000, and the majority of cases are imported or travel-associated.
	Eliminate indigenous cases by 2005.	Achieved	
Mumps	Maintain active prevention program to minimize serious effects.	Achieved	Mumps is an increasingly rare disease in BC. In 2005, seven cases were reported, all in adults. Serious effects resulting from mumps are not regularly assessed.
Pertussis	Reduce illness and deaths related to pertussis.	Partially Achieved	Outbreaks occur every three to five years, and the rate of reporting in 2005 was the lowest it has been since 1998. In January 2004, an adolescent acellular pertussis program was introduced and should lead to reductions in cases in the coming years. Data on deaths are not routinely collected.
	Have all reported cases managed appropriately.	Not Collected	There are guidelines for treatment of cases and contacts. Case and contact management is reviewed locally but data are not collected at the provincial level.
	Reduce intensive care admissions by 50% (from 1995 level) by 1997.	Not Collected	Data on intensive care admissions are not routinely collected.
Polio	Maintain elimination of wild indigenous cases.	Achieved	Last BC case reported in 1979.
	Prevent future imported cases.	Partially Achieved	Risk of imported cases is still present. Immunization rates must be maintained.

DISEASE	NATIONAL GOALS/ TARGETS	STATUS	FACTS
Rubella	Eliminate congenital rubella syndrome by 2000.	Partially Achieved	Between 1998-2005, inclusive, three cases of congenital rubella syndrome were reported in BC. One infant was born in 2002; it is believed the mother acquired a sub-clinical infection while traveling overseas. The other infants in 2004 and 2005 were born to women newly immigrated to Canada. Conception and infection had occurred outside of Canada.
Tetanus	Maintain elimination of tetanus in newborns and children.	Achieved	No cases of tetanus in newborns or children reported in 1998-2005, inclusive.
Invasive Meningococcal Disease (IMD) Serogroup C (proposed)	By 2010, achieve a 70% reduction in the incidence of N. meningitidis serogroup C.	Not Available	In 2003, a routine immunization program against meningococcal group C disease was introduced at 12 months of age and grade 6. Additional cohorts have been added since. Incidence of this disease is low in BC and several years of surveillance will be required to document declines.
Invasive Pneumococcal Disease (IPD) (proposed)	By 2010, achieve an 80% reduction in the incidence of IPD in children under 2 years of age compared with pre-conjugate vaccine incidence.	Not Available	A universal infant pneumococcal conjugate vaccine program started in July 2003. Between 2002 and 2005, the incidence of invasive pneumococcal disease in BC children less than 5 years of age fell by 67%, from 55 to 18 cases/100,000 population. More significant reductions were seen in the younger age groups who have more directly benefited from immunization.
Varicella (proposed)	By 2010, reduce varicella-related hospitalization rates by 80%.	Not Available	A universal childhood varicella vaccine program started in 2005. Surveillance of the program's impact will focus on hospitalizations and deaths from varicella.

Note: Goals and target(s) for most of these diseases are taken from the article National Goals and Objectives for the Control of Vaccine-Preventable Disease of Infants and Children in the Canada Communicable Disease Report (Health Canada, 2005). Goals and target(s) for IMD serogroup C, IPD, and Varicella are selected from those proposed by the Goals and Objectives for Vaccine Preventable Diseases in Canada Consensus Conference, held June 2005 in Quebec City.

By British Columbia immunization records, an estimated 300 cases of Hib, 50,000 cases of measles, 8,000 cases of rubella, at least 20 cases of congenital rubella syndrome, and 600 cases of pertussis and tetanus each year prevented would be given, along with the accompanying risk of complications, suffering, and death.

Source: Provincial Health Officer, 1999

INFANTS AND PRESCHOOL CHILDREN

In BC, all infants and preschool children have access to immunizations that protect them from the following diseases: Diphtheria, Pertussis, Tetanus, Polio, *haemophilus influenzae* type b (Hib), Measles, Mumps, Rubella, and Hepatitis B. In 2003, BC introduced the meningococcal C conjugate and pneumococcal conjugate vaccine program. In 2004, B.C. introduced influenza vaccine for children 6-23 months. In January 2005, BC introduced an infant varicella (chickenpox) program and in June 2005, all infants in BC became eligible for a meningococcal C vaccine. A summary of routine infant immunizations is presented in Table 3.

It is imperative children receive their shots as close as possible to the recommended basic schedule, as these diseases tend to be more serious among infants and young children. In addition, an unimmunized child can put other people at risk for vaccine-preventable diseases.

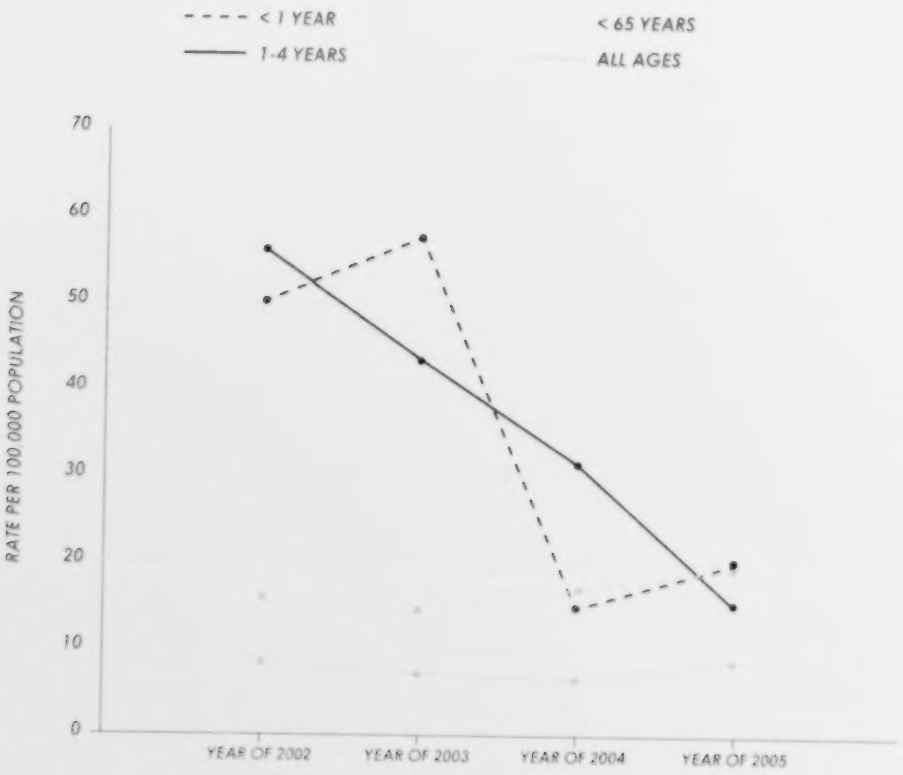
Table 3: Routine Immunization Schedule for Infants

AGE	VACCINE
2 months	Diphtheria/Tetanus/acellular Pertussis/IPV/Hib
	Hepatitis B [i]
	Pneumococcal conjugate [ii]
	Meningococcal C conjugate [iii]
4 months	Diphtheria/Tetanus/acellular Pertussis/IPV/Hib
	Hepatitis B
	Pneumococcal conjugate [ii]
6 months	Diphtheria/Tetanus/acellular Pertussis/IPV/Hib
	Hepatitis B
	Pneumococcal conjugate [ii] (at-risk infants only)
On or after the 1st birthday	MMR [iv]
	Meningococcal C conjugate [v]
	Varicella (if susceptible)
	Pneumococcal conjugate [ii vi]
18 months	Diphtheria/Tetanus/acellular Pertussis/IPV/Hib [vii]
	MMR [iv]
	Pneumococcal conjugate [ii vi viii]

Disease rates have declined substantially because of immunization programs. Many diseases that were once major causes of death and disability have been eliminated or are close to being eliminated. The last polio case in BC was reported in 1979. Tetanus and diphtheria are exceedingly rare. Formerly a major cause of bacterial meningitis in children, *haemophilus influenzae* type b (Hib) is a rarity. Mumps and rubella have declined dramatically.

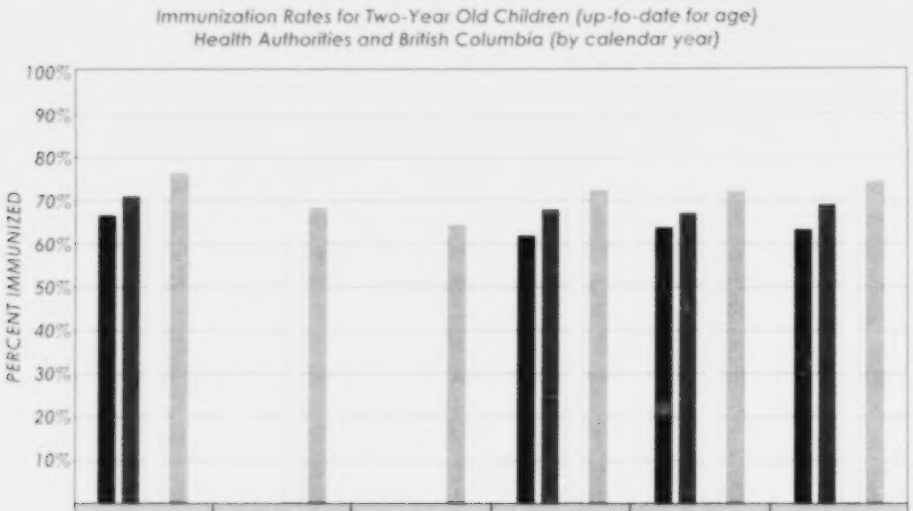
Results for the new vaccine programs are already evident with large declines in pneumococcal disease among young children. Figure 1 provides an example of how effective these new programs have been in BC, showing the incidence of invasive pneumococcal disease after introduction of a universal infant immunization program in 2003.

Figure 1: Incidence of Reported Invasive Pneumococcal Disease by Age Group



Source: Public Health Agency of Canada. (2006). Incidence of invasive pneumococcal disease after introduction of the Universal Infant Immunization Program: British Columbia (2002-2005). Canada Communicable Disease Report, 32(14).

Figure 2: Two-Year-Old Immunization Rates, BC



	IHA	FHA	VCHA	VIHA	NHA	BC *
2003	67.0%			62.1%	64.5%	64.6%
2004	71.3%			68.3%	67.1%	69.2%
2005	72.6%	62.2%		76.3%	70.5%	67.9%
2005 Target	76.3%	68.0%	64.5%	73.3%	72.1%	74.2%

*Includes IHA, VIHA and NHA in 2003 and 2004. Includes IHA, FHA, VIHA and NHA in 2005.

Source: BC Centre for Disease Control. (2007). *Performance measure 32: Two-year-olds with up-to-date immunizations, 2006 Cycle 4 January Update*. Vancouver, BC: Author.

Figure 2 summarizes the proportion of two-year-old children in British Columbia who are up-to-date for their immunizations by their second birthday. Data from January 2004 and onward is not comparable with previously reported two-year-old immunization data as previous years reported each vaccine separately and defined the two-year-old age differently. Based on final 2005 data gathered using the Public Health Information System (iPHIS), rates of up-to-date immunization for two-year-olds increased over 2004 in the Interior Health Authority, Vancouver Island Health Authority and Northern Health Authority regions. As Vancouver Coastal Health Authority and Fraser Health Authority were still implementing monitoring plans in 2004, no data is available for comparison.

As further evidence of the effectiveness of immunization programs, the eradication of smallpox in most of the world by 1975 (worldwide eradication was declared in May 1980) is fully attributable to a vigorous immunization program undertaken after the vaccine was introduced in 1907. At the time the vaccine was introduced, smallpox was infecting approximately 2,263 Canadians each year, of whom 50 per cent would die (Public Health Agency of Canada, 2002). Polio vaccine was introduced in 1955-57, with a province-wide campaign in 1964. Because of vaccines, this disease has been eradicated in Canada and most of the world. The last polio case in BC was reported in 1979. However, vaccination continues to be necessary because of the risk of travellers bringing the polio virus back to Canada.

SCHOOL-AGE CHILDREN AND YOUTH

School-age children have many social interactions, both at school and in the community. This provides more opportunities for transmission of vaccine-preventable diseases. For school-age children and youth, immunization remains an important focus, both to protect the young person and others with whom they interact. Table 4 outlines the routine immunization schedule for children and youth.

Table 4: Routine Immunization Schedule for School-Aged Children and Youth

AGE	VACCINE
School Entry (4-6 years of age)	Diphtheria/Tetanus/acellular Pertussis/IPV [i]
	Varicella (if susceptible)
Grade 6	Hepatitis B (2 doses if not previously immunized)
	Meningococcal C conjugate
	Varicella (if susceptible)
Grade 9	Tetanus/Diphtheria/acellular Pertussis (Tdap)
Grade 12	Meningococcal C conjugate [ii]

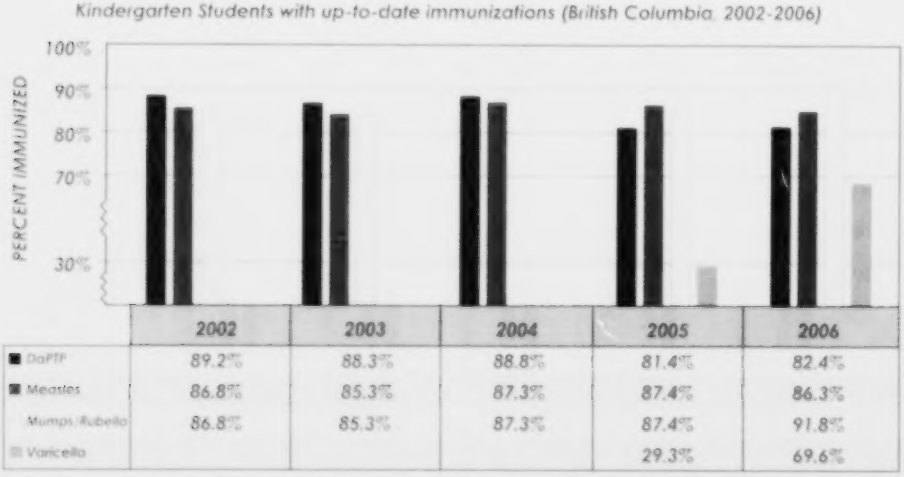
i Not necessary if the 4th dose was given after the 4th birthday. Dose 5 should ideally be given 30 to 54 months after dose 4 (the minimum interval between dose 4 and 5 is six months) on not sooner than age 4.

ii For grade 12 students during the 2006/07 school year.

Source: British Columbia Centre for Disease Control. (2007). Communicable Disease Control Immunization Program: Immunization Manual. See Sun II – Immunization Schedules. Vancouver, BC: Author.

Kindergarten is the time for giving booster doses of early childhood vaccines and for catch-up immunization of children who have missed their recommended shots. Figure 3 clearly shows uptake of varicella vaccine during 2005 and 2006.

Figure 3: Kindergarten Students with Up-to-date Immunizations, BC, 2002-2006



	2002	2003	2004	2005	2006
DaPTP	89.2%	88.3%	88.8%	81.4%	82.4%
Measles	86.8%	85.3%	87.3%	87.4%	86.3%
Mumps/Rubella	86.8%	85.3%	87.3%	87.4%	91.8%
Varicella				29.3%	69.6%

Source: BC Centre for Disease Control. (2006). Kindergarten students with up-to-date immunizations. Vancouver, BC: Author.

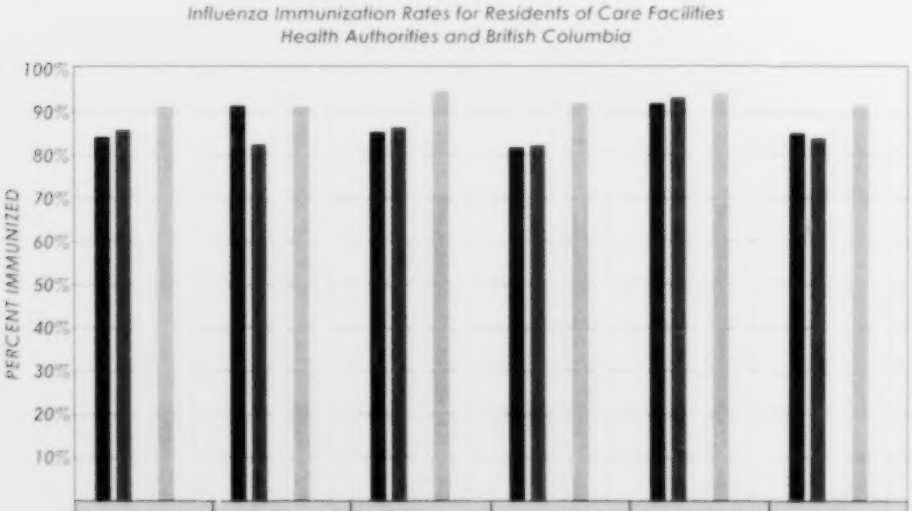
Note: Data may not be comparable by health authority and from year to year due to ongoing changes in SDMS collection methods and changes in geographic health area boundaries. However, assuming consistency in reporting practices, overall trends in immunization coverage can be assessed by examining these data.

ADULTS AND SENIORS

While routine childhood and adolescent immunization programs are designed to provide long-term protection from disease, current immunization guidelines recommend that adults receive a tetanus and diphtheria booster every ten years. Later in life, the immunization program focuses on protecting those who are most vulnerable to influenza and pneumococcal. Influenza vaccines are available at no charge to all British Columbians over 65 years of age, for those who are immunocompromised, and their close household contacts and care providers. Pneumococcal polysaccharite vaccine is recommended and provided free to all persons 65 years and older, and is cost effective in the prevention of mortality and morbitity associated with invasive infections. Annual influenza vaccination reduces the risk of disease and may lessen the severity of illness and need for hospital and physician visits attributable to this common illness. Residents of care facilities are especially vulnerable to hospitalization and death associated with influenza due to age, medical condition, and group living situation; therefore, the province promotes influenza immunization for residents in care facilities and those who provide care.

The influenza immunization program targeting the elderly and high-risk groups has been in place for over two decades. As outlined in figure 4, in 2005/06 the influenza immunization rate for residents of care facilities was 92.4 per cent (Ministry of Health, 2006). Based on data from the Canada Community Health Survey, in 2003, about 69 per cent of BC seniors not living in long-term care facilities reported receiving a flu shot. A far lower proportion of high-risk persons under age 65 were immunized against influenza, with only 33.7% of persons diagnosed with asthma reporting receipt of a flu shot.

Figure 4: Influenza Immunization Rates for Residents of Care Facilities in BC



	IHA	FHA	VCHA	VIHA	NHA	BC
2001/02	84.0%	90.7%	85.7%	82.1%	90.6%	86.7%
2002/03	87.7%	83.0%	86.5%	83.8%	92.0%	85.4%
2003/04	87.4%	93.6%	88.1%	90.7%	88.9%	89.7%
2004/05	90.3%	91.3%	94.0%	90.7%	92.5%	91.8%
2005/06	91.3%	93.0%	94.9%	90.5%	94.5%	92.4%

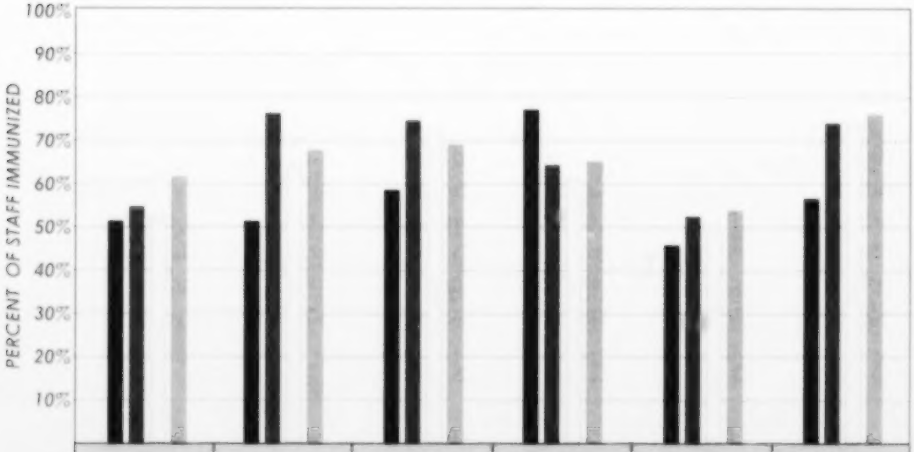
Source: BC Centre for Disease Control. (2006). Performance measure 34: Influenza immunization for residents of long-term care facilities, 2006 Quick Q. [unpublished]. Vancouver, BC: Author.

Annual influenza immunization of workers that interact with these at-risk populations reduces the risk of disease and may lessen the spread of influenza. For the worker, lessening the risk of disease or the severity of the disease maintains their health and reduces the amount of sick time used. For the organization, reducing sick leave improves patient care and contains costs.

Figure 5 outlines influenza immunization rates among long-term care facility staff in BC. Standardized definitions were applied beginning in 2005/06; however, because difficulties were encountered in collecting information for contracted staff, volunteers, and trainees, these data must be interpreted with caution.

Figure 5. Influenza Immunization Rates for Long Term Care Facility Staff in BC

Influenza Immunization Rates for Staff of Long Term Care Facilities
Health Authorities and British Columbia



	IHA	FHA	VCHA	VIHA	NHA	BC
2002/03	51.8%	50.5%	58.7%	77.6%	46.4%	56.4%
2003/04	54.0%	76.0%	73.9%	63.7%	52.7%	63.9%
2004/05	52.1%	63.1%	72.4%	60.1%	49.9%	62.8%
2005/06	62.6%	68.4%	69.3%	64.4%	53.8%	65.3%

Source: BC Centre for Disease Control. (2006). Performance measure 708: Influenza immunization for staff of long term care facilities, 2006 Cycle 2. September. Vancouver, BC: Author.

Note: Because the population of facilities reporting data in some regions may differ from year to year, the precision of the estimates for these rates is not reliable between the years and among the health authorities.

TRAVELLERS

British Columbia's immunization program is designed to protect against a wide range of diseases. However, young or old, British Columbia residents travelling to other parts of the world may be susceptible to certain vaccine-preventable diseases not prevalent in Canada, and may require further immunizations or disease protection available through medication. Those individuals who are planning visits abroad should consult a physician well in advance of departure so that any vaccines or medications required have time to provide adequate protection.

Opportunities and Challenges

The discovery of vaccines and their use in universal immunization programs represent one of the most successful and cost-effective health interventions ever developed. Immunization has eradicated smallpox, substantially reduced morbidity and mortality from pertussis, and virtually eliminated polio, diphtheria, tetanus, and measles. Because of the universal nature of immunization programs, they serve as an effective point of entry for accessing other public health services such as healthy baby clinics and hearing testing.

Despite these achievements, immunization uptake has stabilized in recent years. There are several reasons for this, including complacency about the need for immunization and concerns about vaccine safety (Provincial Health Officer, 1999).

COMPLACENCY

In the absence of immediate threats, such as the polio outbreak of the 1950s, many people, including some health care providers, may believe the dangers of infectious diseases are no longer pressing. Unfortunately this is untrue. Increasingly mobile populations in what has become a global village demand heightened attention to immunization efforts. Old diseases once thought eradicated in BC and Canada could reemerge if we fail to sustain widespread immunization. New disease strains will also continue to evolve, as recent occurrences of Avian Influenza and SARS have highlighted. The health of the population depends on maintaining the gains made in the past and on being alert and responsive to new and emerging infectious diseases.

CONCERNS OVER VACCINE NECESSITY AND SAFETY

As a preventive intervention, immunization is wholly reliant on the acceptance, understanding and trust of those who use the services. Immunization safety including vaccine quality and safety, injection safety and safe injection waste disposal is therefore a critical component of the trust placed by clients in immunization services. Meanwhile, the promotion of immunization as a key public health strategy is currently not realized to its full capacity. In a world, many people remain unaware of the risks of vaccine preventable diseases and/or the benefits of immunization.

Source: Global Immunization Vision and Strategy (GIVS) – UNICEF/WHO, page 31 from www.who.int/immunization_delivery/systems_policy/GIVS.pdf

A segment of the population has voiced objection to vaccine use for various reasons. Not all are convinced about the need for vaccines and some are concerned about vaccine safety. However, when individuals make decisions not to have their children vaccinated, the repercussions go far beyond their immediate family, especially since some members of the community cannot be vaccinated because of weakened immune systems and are at much greater risk of acquiring communicable diseases. For example, if a child is not inoculated for chickenpox, there are two risks: the risk to the child from contracting the disease and the risk to others who have not had the disease nor been immunized.

While the risks to the child of experiencing complications from the disease exist and should not be taken lightly, the risks to an elderly or immunocompromised person without antibodies to chickenpox are much higher and could result in serious illness or death. Canadians value the health of the community and agree that individual choices should take into consideration the impact on the community at large.

In reality, vaccines are one of the safest health care tools available with serious side effects occurring in less than one in a million immunizations in Canada (Provincial Health Officer, 1999, p.5). Minor side effects from vaccines do occur, but compared to the risks of contracting the disease, they are negligible. For instance, in 10 per cent of the population, a rubella vaccination may cause soreness or redness where the injection is given; however an un-immunized pregnant woman who contracts the disease during the first two months of pregnancy has an 85 per cent chance of delivering a baby with birth defects (p.7) and a 20 per cent chance of miscarriage.

PASSION AND COMMITMENT

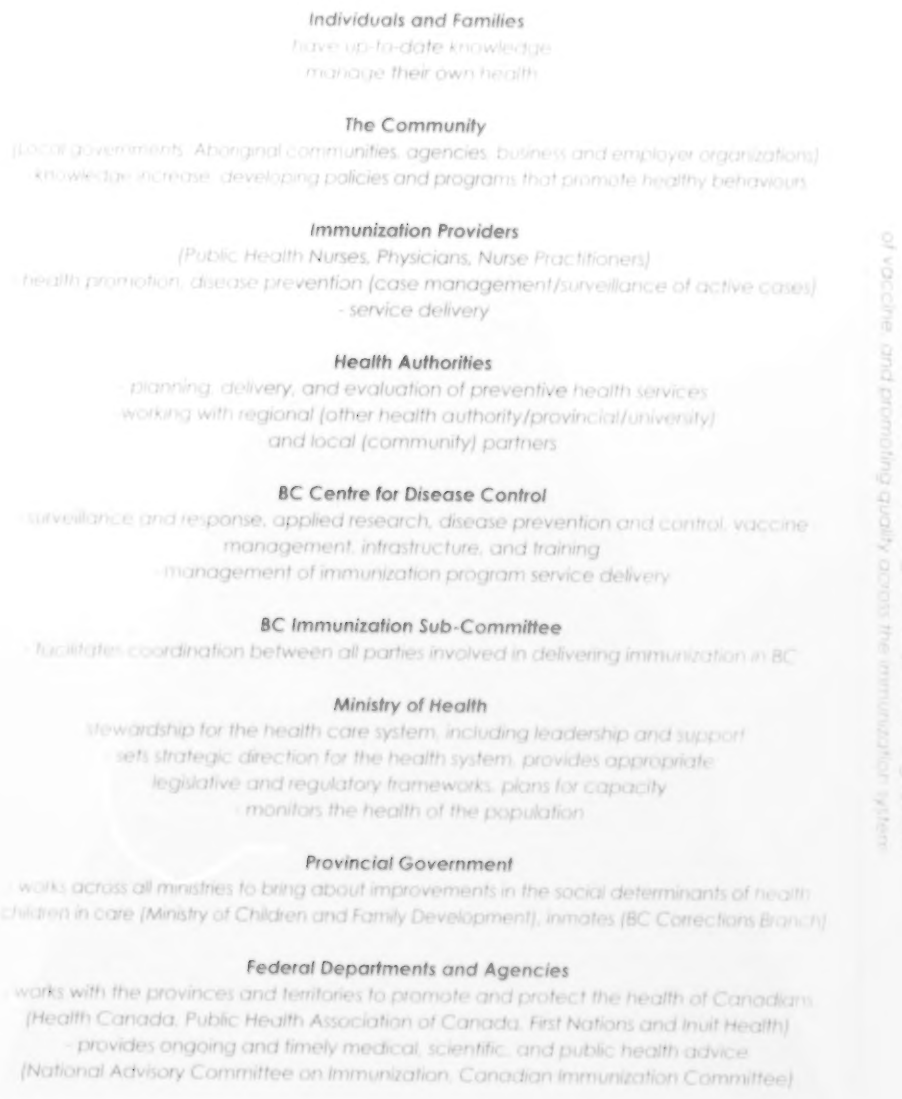
Health professionals, especially those involved in the delivery of immunization programs, are true champions of immunization, recognizing the important role it plays in protecting and maintaining the health of British Columbians of all ages. Public health nurses and physicians across the province have emphasized their desire to continue to be leaders in immunization and to continue educating the public about the importance of the program. Indeed, many British Columbians are staunch advocates for immunization, particularly those who remember the devastating impact diseases such as polio had on families and communities across the province. Immunization providers working with communities are the key to the continued success of the program.

the BC HealthGuides are easy to understand fact sheets on over 130 health and safety topics including immunization, which are regularly updated with the latest BC health advice. These HealthGuides are available on the BC HealthGuide web site at www.bchealthguide.org

Roles and Responsibilities

Responsibility for the immunization program is shared between the Ministry of Health, BC Centre for Disease Control, health authorities, and ultimately all British Columbians. While there are many players whose involvement is key to an effective immunization program, families and individuals form the cornerstone of a successful program. The health system also depends on strong relationships with other organizations that play key roles in addressing the social determinants of health. Appendix A details the roles and responsibilities of these groups.

Figure 6: Roles and Responsibilities


Individuals and Families
have up-to-date knowledge
manage their own health
The Community
(Local governments, Aboriginal communities, agencies, business and employer organizations)
- knowledge increase, developing policies and programs that promote healthy behaviours
Immunization Providers
(Public Health Nurses, Physicians, Nurse Practitioners)
- health promotion, disease prevention (case management/surveillance of active cases)
- service delivery
Health Authorities
- planning, delivery, and evaluation of preventive health services
- working with regional (other health authority/provincial/university)
and local (community) partners
BC Centre for Disease Control
- surveillance and response, applied research, disease prevention and control, vaccine
management, infrastructure, and training
- management of immunization program service delivery
BC Immunization Sub-Committee
- facilitates coordination between all parties involved in delivering immunization in BC
Ministry of Health
stewardship for the health care system, including leadership and support
- sets strategic direction for the health system, provides appropriate
legislative and regulatory frameworks, plans for capacity
- monitors the health of the population
Provincial Government
- works across all ministries to bring about improvements in the social determinants of health
children in care (Ministry of Children and Family Development), inmates (BC Corrections Branch)
Federal Departments and Agencies
- works with the provinces and territories to promote and protect the health of Canadians
(Health Canada, Public Health Association of Canada, First Nations and Inuit Health)
- provides ongoing and timely medical, scientific, and public health advice
(National Advisory Committee on Immunization, Canadian Immunization Committee)
Evidence-based support for building capacity, enhancing uptake
of vaccine, and promoting quality across the immunization system

Funding

The national and provincial commitment to improving immunization services has resulted in a doubling of funding in BC and the addition of more than eleven new and/or enhanced immunization programs since 2002. In 2004/05, the Government of Canada committed $300 million nationally through the Public Health and Immunization Trust Fund to support the National Immunization Strategy. This funding provided for the introduction of new and recommended childhood and adolescent vaccines. In 2006/07, $36 million was allocated within BCCDC for the purchase and distribution of vaccines in BC, while health authorities allocated additional funds and the staffing required to deliver immunization services across the province. [4]

Investment in immunization benefits society in many ways, including reducing acute care costs and lost productivity days. For instance, the cost of providing a full range of immunizations from infancy through adolescence is about $482, or as much as keeping someone in hospital for 14 hours (at $814 per hospital day). [5]

Developing the Framework

A variety of activities were undertaken to support the development of this strategic framework. A review of international, national, provincial, state and local strategies was conducted, including strategies prepared by the World Health Organization, Australia, Texas and San Diego (See References section for a complete list). In addition, this framework builds on Canada's National Immunization Strategy and on the 1998 Provincial Health Officer's feature report on immunization (Provincial Health Officer, 1999). Planning workshops were conducted with the expert membership of BC's Immunization Sub-Committee. Consultation sessions were conducted across British Columbia, with health authorities and key strategic partners. A detailed list of participants is provided in Appendix B.

Feedback from consultation forums was sorted into strategic advice and implementation considerations. The strategic advice was then synthesized into common themes that were used to assist in the development of this framework. The following themes were identified:

- Ensure both the public and health care providers understand and support the importance of immunization as a key public health tool and a civic responsibility.
- Promote consistent knowledge, skills, practice, and support across the mixed provider delivery system.
- Proceed with activities outlined in the *eHealth Strategic Framework* to improve the system's ability to gather immunization information, to use the information to ensure program objectives are being met, and to easily be able to share information between different parts of the system. [6]
- Streamline business processes and program designs to optimize access to immunization programs, and provide clear information about both programs themselves and their eligibility criteria.
- Rebuild and strengthen partnerships with the school system.
- Strengthen promotion capacity for all providers.
- Improve inventory management.

Principles and Values

The following principles and values serve as guides for implementing this framework, and are intended to assist decision makers and service providers to make the best decisions under a variety of circumstances.

BUILDING CAPACITY

Building capacity means enhancing the ability of the immunization program to increase and sustain reach; decreasing the burden of vaccine-preventable diseases; and expanding the use of safe and cost-effective vaccines (World Health Organization, 2002, p. 83). Building capacity also means developing, fostering, and supporting both the resources and the relationships required for immunization at individual, organizational, inter-organizational, and systems levels.

PARTNERSHIP, OWNERSHIP, AND RESPONSIBILITY

The immunization delivery system must include health service providers from different disciplines who deliver programs in different settings while engaging external partners such as the education system, early childhood care providers, the criminal justice system, federal departments, consumers groups, and parents. All partners require a clear understanding of their role in achieving program goals.

ACCESSIBILITY

Immunization services must be made accessible through communicating clarity of purpose, ensuring multiple points of access, providing flexible service, and removing barriers.

ACCOUNTABILITY, EFFICIENCY, AND COST-EFFECTIVENESS

Immunization services must be delivered efficiently and make the best use of limited resources by seeking all opportunities to achieve the best value for money.

EVIDENCE-BASED

Both the general public and health professionals must be assured that planning for immunization services is based on the best available data and subjected to rigorous standards of analysis. A strong, regionally based immunization system must be supported by policies and programs based in evidence and best practices. The evidence and rationale for immunization programs must be made available to the public in easily understandable formats.

EMBRACING INNOVATION

To expand the reach of its programs and maintain leadership in immunization, BC must be creative and innovative. Innovation can occur through the use of new technology, such as tracking vaccines with bar-codes, or applying new methods for reaching under-immunized populations.

Vision and Mission

This document articulates a unifying vision for 2010 and beyond to stimulate collective action and ensure commitment by immunization partners and the community. This vision aims to improve health outcomes by strengthening the delivery system and inspiring public and stakeholder support.

Government has set out five overarching goals to guide the work of ministries in achieving the full potential of British Columbia. The Five Great Goals for a Golden Decade focus on literacy and education, healthy living and physical fitness, supports for the most vulnerable members of society, environmental stewardship, and job creation.

The work of the Ministry of Health is guided by the government's Five Great Goals. While the Ministry's primary contribution to achieving the five goals can be found in the goals focused on health and wellness and providing supports to the most vulnerable members of society, the work of the Ministry and its partners ultimately contributes to the achievement of all the government's goals. In recognition of the foundational role immunization plays in healthy development and prevention of communicable disease, the Ministry of Health supports the vision, mission, and strategic direction set by this framework.

VISION

BC is a leader in immunization where:

- Immunization is highly valued by the public, health care professionals, and the health system.
- Every child, adolescent, and adult has timely access to immunization as provided for in the provincial schedule.
- A greater proportion of British Columbians are protected against more vaccine-preventable diseases.
- Immunization is sustained in conditions of diverse social values, changing demographics and economies, and evolving diseases.
- Immunization is seen as crucial for the wider strengthening of health systems.
- Vaccines are put to best use in improving health.

MISSION

To improve the health of British Columbians by continuing to reduce the incidence of vaccine-preventable diseases and the associated impact of disease, disability, and death.

Strategic Goals and Objectives

This framework articulates a clear and compelling desire for renewed commitment. It proposes sustaining immunization to those who currently participate and extending immunization to those who currently do not; enlisting the public and stakeholders as champions of the program; enhancing system capacity; and linking immunization to other health interventions as well as to the development of the overall health system. Immunization can benefit from and contribute to health system development and the removal of system-wide barriers. The framework is supported by broad goals and underlying objectives and strategies (See Appendix C – Logic Model). The key elements of the framework are outlined below, and are covered in more detail in the pages to follow.

Vision

BC is a leader in immunization where:

- *Immunization is highly valued by the public, health care professionals, and the health system.*
- *Every child, adolescent, and adult has timely access to immunization as provided for in the provincial schedule.*
- *A greater proportion of British Columbians are protected against more vaccine-preventable diseases.*
- *Immunization is sustained in conditions of diverse social values, changing demographics and economies, and evolving diseases.*
- *Vaccines are put to best use in improving health.*

Mission

To improve the health of British Columbians by continuing to reduce the incidence of vaccine-preventable diseases and the associated impact of disease, disability, and death.

Goals

 # 1

Increase the uptake of current and future recommended vaccines to reach select Provincial and National Immunization Strategy targets by 2010.

 # 2

Ensure the immunization program is supported by the most current, evidence-based information on the status of vaccine-preventable infectious diseases in BC and on emerging sources of infectious disease risk from other parts of the world.

 # 3

Build the capacity of the immunization program to ensure long-term sustainability.

 # 4

Promote quality across the immunization system to achieve improved system performance.

Priority Actions

- *Promote the immunization program to the public and health care professionals.*
- *Improve access to immunization services.*
- *Ensure an adequate supply of knowledgeable, trained, service providers.*
- *Create an integrated immunization registry.*
- *Improve the vaccine inventory management system.*
- *Establish an immunization research agenda that includes the socio-cultural aspects of vaccine delivery and uptake.*

The framework aims to improve the health of British Columbians by continuing to reduce the incidence of vaccine-preventable communicable diseases and the associated impact of disease, disability, and death in BC through:

- establishing a commonly held vision, shared across the immunization system, with key partners and with the public, of the importance and strategic objectives of the immunization program.
- strengthening the health system through stewardship, human resource planning, maximizing the use of finances, and ensuring access to service provision.
- developing an infrastructure that will support and sustain immunization services (immunization service delivery, disease surveillance, logistics, vaccine supply and quality, and advocacy and communication).
- addressing key trends in the external environment that will support or hinder the success of the immunization program in the long run.
- identifying the expectations and needs of stakeholders.

GOAL 1

Increase the uptake of current and future recommended vaccines to reach select Provincial and National Immunization Strategy targets by 2010.

Rationale

Immunization is one of the miracles of the 20th century. With the exception of safe drinking water, no other intervention—not even antibiotics—has had such a major impact on people's health and survival (Plotkin & Plotkin, 1994, as referenced in Provincial Health Officer, 1999).

Statement of Direction

Strategies include frequent and regular messaging to ensure that British Columbians understand the importance of participating in immunization programs and that service providers are supported in implementing the program. Optimal participation is achieved through public understanding of the importance of immunization as a preventive measure, and through ensuring immunization services are accessible.

Individuals and health care professionals must regard participation in and support for the immunization program as a civic and professional responsibility. Emphasis will be placed on creating new and improving existing partnerships. Achieving increased uptake will also depend on establishing agreed-upon provincial and regional targets and timeframes.

Understanding the acceptance and non-acceptance of vaccinations by the public in diverse social and cultural contexts is crucial to sustaining high immunization coverage. Strengthening provincial and national social science research capacity in immunization is also of the utmost importance for the program. To achieve optimum program uptake, action will be taken with clients and delivery partners to identify barriers and develop strategies to increase program access and reach.

Strategies and Objectives

1. Communicate a commonly held vision about the importance and strategic objectives of the immunization program across the health system, and share with external partners and the public.

    1.1 Articulate BC's vision to guide the immunization program over the next five years.

    1.2 Consult with, educate, and inform all stakeholders to ensure common commitment to the program's vision, goals, and objectives.

2. Encourage British Columbians to view immunization as an essential part of healthy living thereby promoting public confidence in the program.

    2.1 Determine current attitudes and beliefs regarding immunization across all target populations.

2.2 Determine the information and knowledge required in order to help the public develop the attitudes and behaviours that reflect an informed understanding of the vital importance of immunization to maintaining individual and population health.

2.3 Develop and implement strategies to increase the knowledge of the general public about the availability of vaccinations and the vital importance of vaccinations to maintaining population health.

2.4 Engage the public, with an emphasis on high priority populations, (e.g. hard-to-reach, under-immunized groups) in understanding and promoting the value of immunization, and seeking to be vaccinated.

2.5 Ensure promotion, advocacy, and communication is an integral component of the immunization program.

3. **Improve access to immunization services.**

3.1 Identify barriers to accessing immunization services and develop strategies to improve access.

3.2 Develop and implement a strategy to increase the range of settings in which immunizations are provided beyond public health clinics and physicians' offices.

3.3 Promote the consistent delivery of immunization by all providers (e.g., primary care, public health, and private physicians)

3.4 Explore, in consultation with physicians and the Medical Services Plan, ways to address barriers to increased physician participation.

3.5 Explore opportunities to streamline and/or improve business processes to remove barriers to access.

3.6 Evaluate Aboriginal coverage rates and implement strategies to improve uptake in areas where participation is lower than that of the non-Aboriginal population.

3.7 More effectively communicate the rationale for eligibility policies to the public and to service providers.

4. **Meet provincial coverage targets to reduce the burden of vaccine-preventable diseases and retain rates to prevent disease resurgence.**

4.1 Establish provincial targets to confirm current, and set new, service objectives.

4.2 Determine appropriate health authority incremental strategies and timeframes for meeting the targets, including consideration of recommendations from the Provincial Health Officer's 1998 report, the goals and objectives from the National Consensus Conferences, and provincial targets.

GOAL 2

Ensure the immunization program is supported by the most current, evidence-based information on the status of vaccine-preventable infectious diseases in BC and on emerging sources of infectious disease risk from other parts of the world.

Rationale

Over the next five years, new disease strains, vaccines, and technologies will emerge. To ensure BC makes rational, evidence-based decisions about the choice of new vaccines and technologies, attention must be directed to filling knowledge gaps regarding burden of disease and cost-effectiveness of new strategies. Currently, there is no standardized system for gathering immunization information across the province, making it difficult to assess progress. It is equally important that all providers are able to communicate and access program information—including the ability to share information between and within health authorities, and with First Nations communities.

Statement of Direction

Immunization information systems help to maximize protection against vaccine-preventable diseases by providing accurate data. By facilitating the development, implementation, and acceptance of these systems, immunization providers will have the data they need to make the best immunization decisions. An immunization registry is a key component of an immunization information system. It provides a framework for maintaining up-to-date immunization records and tracking immunization status.

The province is currently implementing an eHealth Strategic Framework, "a directional document that describes British Columbia's long-term vision for eHealth, with a strong focus on tangible benefits and deliverables for the next three years." British Columbia's eHealth Strategy articulates the health system's commitment to "more complete childhood immunization records and less risk of duplication…" within three years (Ministry of Health, 2005, pp.29-31, 58).

The eHealth strategy will capture the majority of immunizations provided in the public health system and make them electronically available to care providers. British Columbia is leading a pan-Canadian effort to improve public health information systems and promote their interoperability through the British Columbia Public Health Information Project. This initiative will enhance the province's ability to perform communicable disease surveillance, and deliver public health protection services, including comprehensive immunization registration. The long-term plan is to create a single or interconnected system of registries as part of a larger eHealth system that can be adopted not only in British Columbia but right across the country. Ideally, this larger system will also include information about vaccine supply, utilization, and distribution.

Having access to current immunization information provides the foundation for an effective surveillance program. Surveillance has been defined as: "the ongoing systematic collection, analysis and interpretation of data and the dissemination of information to those who need to know in order that action be taken. The objective of surveillance is to provide timely information to guide the planning, implementation and evaluation of public health interventions and systems" (World Health Organization, 2002).

Strategies and Objectives

1. Strengthen the flow, quality, and appropriate use of immunization program information to support health workers and planners to plan and deliver services more effectively and efficiently, to support efficient vaccine distribution throughout the province, and to support clients to have appropriate access to information.

    1.1 Develop a strategic data plan that provides a comprehensive outline of the information needs of each partner in the immunization system (e.g., Ministry of Health, BC Centre for Disease Control, health authorities, service providers, First Nations Inuit Health, clients).

    1.2 Explore ways to encourage clients to be partners in maintaining up-to-date health records.

    1.3 Develop standards for uniform record access across the system.

    1.4 Implement enhancements to the current electronic record applications to improve data entry, analysis, reporting, and interoperability.

    1.5 Participate in the development of national information standards, so that all jurisdictions within and between provinces are able to report immunizations, communicable diseases, and adverse reactions in a consistent and comparable way.

    1.6 Improve interfaces with external partners: First Nations and Inuit Health and federal and provincial corrections facilities.

2. Create a single registry or system of interconnected registries that can support all program functions and allow information to be shared provincially and nationally.

    2.1 Undertake the planning necessary to create an immunization registration system and develop an implementation strategy.

    2.2 Educate stakeholders about the use and benefits of an immunization registration system.

2.3 Identify, develop, and promote strategies to support recruitment and retention of immunization providers participating in an immunization registration system.

2.4 Develop and implement specific strategies for stakeholder education, including developing a central mechanism for sharing educational materials and best practices.

3. **Enhance public health surveillance systems and processes to collect, analyze, and disseminate information to those who need to know so that action may be taken.**

3.1 BC will report priority vaccine-preventable disease surveillance and immunization coverage rates to evaluate the effectiveness and safety of the program, and BCCDC and health authorities will use the data to determine the need for new and expanded immunization programs by periodic assessment of the level of infection and immunity in the population.

3.2 Develop strategies to target areas where improved system performance is required, including tracking of adverse events following immunization.

3.3 Maintain and enhance surveillance of vaccine-preventable diseases.

3.4 Ensure dissemination of surveillance and research findings and effective translation of science to policy and programs.

3.5 Ensure the capacity exists to access coverage rates at a provincial, regional, and local level, as well as at a specific population level.

GOAL 3
Build the capacity of the immunization program to ensure long-term sustainability.

Rationale

With an increasing population, increased immigration, the evolution of new strains of communicable diseases, and new vaccines in development, the immunization program must continue building capacity to respond to emerging demands and challenges. The program must maximize the use of available resources and create sufficient flexibility to permit nimble responses to changing circumstances.

Statement of Direction

Achieving health system goals depends on the cohesive action of all partners working to make best use of their resources, skills, and expertise.

Program sustainability requires appropriate policies, legislation, regulation, and the common understanding of roles and responsibilities. All aspects of the program must be engaged in integration and coordination to improve access. Appropriate financial and human resources must be applied to meet current and projected needs.

Provincial consultation sessions identified the benefits of consistency and uniform delivery across providers, including common application of training and certification requirements. Improving consistency and uniform delivery requires both the engagement of health service delivery partners across the province and the involvement of the educational institutions that prepare British Columbia's future health care workers.

Strategies and Objectives

1. Ensure the legislation and regulations are in place to clearly articulate the mandate and authority of the immunization program and support its effective delivery.

    1.1 Identify new legislation and/or changes to existing legislation required to ensure the immunization program has the appropriate mandate to achieve its goals, and the authority to implement the mandate.

    1.2 Ensure the new *Public Health Act* is consistent with the principles of the strategic framework by ensuring the individual's right to informed consent is balanced with the broader interests of community health.

2. Ensure the immunization program is well defined, its components clearly articulated, roles and responsibilities understood and championed across the health system by all, and success criteria identified.

    2.1 Articulate immunization program core functions, roles, and responsibilities and communicate to all providers.

2.2 Develop a performance plan that documents targets for all programs, prioritizes groups, and outlines proposed child, adolescent, and adult immunization activities to reach provincial and national objectives.

2.3 Explore ways to clearly and simply present complex information to service providers.

3. **Seek continued investment in the system and ensure funding is aligned to achieving the priority objectives.**

3.1. Determine funding priorities through burden of disease and risk analysis and review of outstanding priority recommendations from the Provincial Health Officer's 1998 report on immunization.

3.2 Identify funding requirements and opportunities to address emergency preparedness where immunization is included as part of the response (e.g., pandemic response).

3.3 Analyze the efficiency and cost of current immunization program activities including current expenditure patterns, and align with revised priority objectives.

3.4 Advocate for continued funding of the National Immunization Strategy.

4. **Have sufficient, qualified providers to meet current and future immunization program demands in an inter-disciplinary service system.**

4.1 Assess current staffing levels against proposed immunization targets, determine number of providers required to meet them, and develop strategies to recruit providers from within the existing supply of potential providers.

4.2 Identify issues that affect retention and develop strategies to address.

4.3 Investigate opportunities to expand the range of health care professionals providing immunization.

4.4 Develop strategies for managing surge capacity.

4.5 Articulate the criteria for achieving an interdisciplinary model of staffing.

5. **Ensure all persons involved in the delivery of publicly funded immunization programs have the knowledge and skills to ensure up-to-date practice.**

5.1 Regularly communicate current competency requirements to providers with information on how to upgrade skills and knowledge.

5.2 Determine current training requirements and knowledge gaps.

5.3 Identify strategies for providing training pre- and post-employment, consistent with the National Immunization Committee professional education working group core competencies.

6. Enhance partners' capacity to promote the benefits of immunization across the spectrum of health services planning and delivery functions.

   6.1 Develop a framework for promotion as the basis for a common provincial approach and set of principles for partner agencies.

   6.2 Determine priorities for immunization promotion activities.

   6.3 Map health authority activities to better understand and maximize partnerships and build on diversity and address relevant gaps.

   6.4 Develop core indicators to measure capacity in the area of promotion communication.

   6.5 Explore how immunization can contribute to government-wide initiatives like ActNow BC.

   6.6 Improve supports to physicians to enable them to more effectively promote immunization programs.

GOAL 4
Promote quality across the immunization system to achieve improved system performance.

Rationale

In moving towards the National Immunization Strategy goals, it is critical that all components work together to achieve optimal service quality and program reach.

Statement of Direction

In support of the provincial government's goal to lead the way in North America in healthy living and physical fitness, the Ministry of Health set a goal of *Improved Health and Wellness for British Columbians*. Ministry performance measures for this goal include immunization rates for children and for the elderly. Performance measures are an ongoing, constructive process to assist in measuring and identifying achievements and challenges. Evaluation results will be communicated to stakeholders and the public, and feedback regarding program effectiveness will be encouraged.

BC is an active participant in the ongoing and complex process to establish national standards and benchmarks for performance in key service areas. BC will continue to establish quantitative targets for performance agreements based on evidence and discussions with health authorities. In the meantime, BC will develop its evaluation capacity to assess how consistently its immunization program operates within the guidelines established in the Canadian Immunization Guide (See Appendix D for the list of guidelines).

In order to achieve the objectives set out in this framework, it is necessary to undertake social and applied research at the provincial level. Immunization programs are increasing in complexity, as is the social environment—including that of health care systems—in which they are delivered.

This increasing complexity, coupled with less than optimal immunization rates, raises the need to better understand the barriers to vaccine uptake as well as the changing dynamics of vaccine delivery. Research in these areas will contribute to more informed approaches for vaccine promotion as well as addressing access issues.

It is equally important that we have a well-managed vaccine supply system. Vaccine delivery must be timely, accessible, and well-managed to ensure the highest quality and the most efficient use of resources.

British Columbia's mixed-delivery system presents both opportunities and challenges. To sustain a mixed-delivery system, it is important that all providers have the information, knowledge, skills, and support to effectively and consistently deliver the program. All providers have a role to play in defining and sustaining a safe, efficient, and responsive immunization program. Meeting longer term program objectives will require integrating efforts across providers and engaging a wider range of program partners.

Strategies and Objectives

1. Ensure the systems are in place to continuously improve all immunization program components and business processes.

    1.1 Define quality and articulate quality assurance requirements in concert with core function requirements (Ministry of Health Services, 2005).

    1.2 Explore quality improvement activities to support all immunization providers.

    1.3 Provide regular public feedback through creation of reader-friendly annual reports, report cards, and case studies (e.g., successes and failures) and encourage and incorporate feedback.

    1.4 Develop a performance plan that documents targets for all programs and priority groups, and outlines proposed child, adolescent, and adult immunization activities to reach provincial and national objectives.

2. Establish an immunization research agenda that includes the socio-cultural aspect of vaccine delivery and uptake.

    2.1 Undertake research to explore the best ways of improving uptake by evaluating the effectiveness of particular approaches.

    2.2 Undertake research to better understand the trade-offs between high coverage rates and delivery system costs so we establish targets that are concretely linked to establishing herd immunity. [7]

3. Ensure an adequate, stable, safe, timely, and affordable vaccine supply through the successful negotiation of contracts, efficient vaccine ordering, and safe and timely management and delivery of vaccines.

    3.1 Implement a vaccine inventory system to reduce product waste and demand on staff time.

    3.2 Communicate best practices to all providers and introduce strategies to implement best practices in vaccine management and administration across the service system including defining an acceptable standard of wait times for immunization services.

    3.3 Implement a robust [8] system for the prevention, identification, and management of immunization incidents across the system.

    3.4 Develop a common understanding of the criteria for program success and establish specific standards for each element; for instance: vaccine wastage targets, cold chain standards, protocols for vaccine distribution and redistribution, and vaccine return policies.

3.5 Explore with PharmaCare opportunities to proactively work with vaccine manufacturers to improve product design, scheduling, and safety and influence research and development to address innovative solutions.

3.6 Take steps to ensure all providers have timely access to vaccines.

4. **Create a seamless immunization program and delivery system capable of responding to routine and exceptional demand, by integrating immunization with other linked health interventions and surveillance in the health systems context (e.g., pandemic response planning, early childhood program, chronic disease management).**

4.1 Forge new, and strengthen existing, partnerships across the health care system and with external partners.

4.2 Coordinate to ensure efforts of multiple health system partners are focused towards achievement of immunization objectives.

4.3 Ensure the capacity exists to respond to outbreaks of vaccine-preventable diseases.

4.4 Undertake the analysis to determine if the capacity exists to routinely communicate with all providers to manage surges in demand and provide a vehicle for communicating information on best practices, new clinical protocols etc.

5. **Develop an evaluation framework and cycle to assess program delivery effectiveness (e.g., analyze immunization information regarding coverage, disease surveillance, vaccine safety, public knowledge, and attitudes) and communicate to health care providers to assist them to improve practice as part of an annual reporting process.**

Priority Actions

The following priority actions outline the areas where immediate attention is needed. They reflect two important aspects of moving forward: responding to immediate, pressing needs and taking steps that will lay a solid foundation for future activities. They are not intended to be ranked; rather they are to be acted upon simultaneously.

Promote the immunization program publicly and with health care professionals.

- Develop messaging which promotes immunization as a basic element of healthy living and as a civic responsibility.
- Ensure service provider and health leader attitudes support immunization program objectives.
- Ensure promotion efforts address stakeholder concerns, allow for feedback, and ensure clients have easy access to the information necessary to make informed decisions.

Improve access to immunization services.

- Address barriers to access by looking for innovative ways to extend service provision and engage hard-to-reach populations.
- Implement enhanced and flexible hours, provide the service in non-traditional settings, and provide outreach.
- Ensure clients receive timely immunizations.

Ensure an adequate supply of knowledgeable, trained service providers.

- Ensure sufficient providers in all health regions.
- Expand the range of professionals trained to provide the services (e.g., licensed practical nurses, nurse practitioners, and others).
- Ensure providers are appropriately educated and trained to deliver immunization services and that training is up-to-date.

Create an integrated immunization registry.

- As creating a single integrated immunization registry is a complex, long-term process, focus on health record improvements that can be implemented immediately, such as the launch of a system of interconnected immunization registries.
- Continue to participate in the development of an integrated electronic health record.

Improve the vaccine inventory management system.

- Implement a vaccine inventory system that takes advantage of new technology.
- Improve supply management to reduce waste, require less staff time, and save dollars.

Establish an immunization research agenda that includes the socio-cultural aspects of vaccine delivery and uptake.

- Expand understanding of the barriers to vaccine uptake and recognize the changing dynamics of vaccine delivery.
- Develop a more informed approach to vaccine delivery and address issues regarding accessibility.

Implementation

This document offers a broad strategic framework rather than a detailed strategic plan. Building on the vision and strategic directions outlined in this framework and informed by local, provincial, and national data, all partners are invited to examine their options, establish priorities, set objectives and targets, elaborate strategic plans and service plans, project their resource needs and the availability of resources, and formulate monitoring and evaluation frameworks. The Ministry of Health, BCCDC, and regional health authorities must begin by setting targets and priorities for immediate action.

Currently there is considerable work underway in a variety of areas. Provincial, regional, and local planning will benefit from building on the activities currently taking place, such as the development and implementation of British Columbia's e-Health Strategic Framework, the development of evidence papers and benchmarks to support Core Public Health Functions, and related service planning at the regional level.

It is also important to explore ways to provide opportunities for information-sharing and feedback and to ensure accountability in implementing the goals and objectives outlined in the framework. The progress in achieving the goals and objectives of the strategic framework will be monitored, and results reported through annual public reports.

The BC Immunization Sub-Committee will be the coordinating body to identify what elements of the strategic framework will be addressed at the regional level, and what will be addressed by the Ministry of Health and BCCDC. Once responsibilities have been clearly defined and timelines for preparing and submitting plans developed, an implementation plan integrating and coordinating all the individual activities, and short- and long-term targets, will be determined.

Monitoring and Reporting on Progress

Measuring success requires establishing targets, benchmarks, and standards associated with achieving major goals and objectives. Evaluating progress can assist in determining how effective strategies have been in achieving the desired results. Monitoring and tracking progress also provides the evidence to support scaling up effective activities and the ability to identify activities that are no longer achieving desired results. Short-term targets generally relate to redesign, role reorientation, and implementation milestones. Long-term evaluation generally measures the impact implemented strategies and activities have on population and sub-population level health outcomes.

An evaluation protocol will be developed among key partners, and will be designed to complement existing monitoring activities and answer key questions. For instance, over time, do more people engage in seeking and receiving immunizations? Does the general public better understand and value the importance of immunization as a foundational preventive health tool? Has the capacity of the service delivery system been improved?

This framework has been developed to serve as a guide for the next ten years. Along the way, information gathered through program evaluation and disease surveillance will be provided as part of a continuous feedback loop to assist policy makers, managers, and service providers to make good program decisions. Information will also be distributed more broadly to provide improved tools and access to service and encourage changes in attitudes and behaviours at the individual, family, and community level. Formal public progress reporting will occur on an annual basis, beginning in 2008.

Over the long-term, the evaluation must examine three dimensions:

1. Have the framework's strategic objectives been attained?
2. What effect has the implementation of the strategic framework had on different parts of the system (process evaluation)?
3. Have desired improvements in health outcomes been achieved?

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Glossary

Capacity-building: "The contemporary view of capacity-building goes beyond the conventional perception of training. The central concerns of environmental management—to manage change, to resolve conflict, to manage institutional pluralism, to enhance coordination, to foster communication, and to ensure that data and information are shared—require a broad and holistic view of capacity developing" (See http://nrm-changelinks.net/capacity.html).

"An individual and organizational learning process that involves reflection, analysis, skill building, networking and action all aimed at increasing the knowledge, imagination, vision and impact of an organization and the individuals involved in it" (Center for the Study of Human Rights & The Banyan Tree Foundation, 2002).

Organizational capacity-building refers to the process of ensuring an organization has the systems, physical assets, human resources, culture, and ability to plan for the future while operating in the present.

Institutional capacity-building seeks to "strengthen institutional development by strengthening links and the development of environments within which organizations exist" (Green & Battcock, n.d.). For example, this could include information sharing, lobbying, resource sharing, and coordination.

Community capacity-building is a community development process which builds on community assets to engage citizens in the process of addressing complex community issues. It involves "...strengthening people's understanding of their own needs, entitlements and rights, building their understanding and knowledge ....and enabling them to organize themselves to respond to this understanding" (Green & Battcock, n.d.).

Collaboration: "A process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own visions of what is possible. Collaboration involves joint problem-solving and decision-making among key stakeholders in a problem or issue. Four features are critical to collaboration:

1. The stakeholders are interdependent.
2. Solutions "emerge" by dealing constructively with differences.
3. Decisions are jointly owned.
4. Stakeholders assume collective responsibility for the future direction of the domain.

In collaboration it is normal to have a lack of clarity about who is a stakeholder, disparity of power and/or resources among stakeholders, complex problems that are not well defined, scientific uncertainty, differing perspectives that lead to adversarial relationships, and dissatisfaction with previous and existing approaches and processes.

Collaboration is a distinctly different process than coordination and cooperation. Collaboration is an emergent and evolving process of building substantive agreement. Coordination involves formalized, defined relationships among organizations. Cooperation involves informal trade-offs and agreements established in the absence of formal rules. Both coordination (formalized process) and cooperation (informal process) often occur as part of a collaborative process. Once initiated, collaboration creates a temporary forum within which participants can seek consensus about a problem, invent mutually agreeable solutions, and develop collective actions for implementation (Adapted from Gray, 1989; Chronic Disease Prevention Alliance of Canada, n.d.). [9]

Determinants of Health: "The range of personal, social, economic and environmental factors which determine the health status of individuals or populations. The factors which influence health are multiple and interactive. Health promotion is fundamentally concerned with action and advocacy to address the full range of potentially modifiable determinants of health—not only those which are related to the actions of individuals, such as health behaviours and lifestyles, but also factors such as income and social status, education, employment and working conditions, access to appropriate health services, and the physical environments. These, in combination, create different living conditions which impact on health. Achieving change in these lifestyles and living conditions, which determine health status, are considered to be intermediate health outcomes (World Health Organization, 1998).

Evidence: Evidence consists of research and evaluation findings (including process, outcome, and economic evaluations), needs assessments, specialist and community knowledge, as well as the lived experiences of patients, their families, community leaders, and service providers. The nature of the evidence needed depends on what is meant by effectiveness. Effectiveness refers to the extent to which the intended outcomes of an intervention are achieved in accordance with stated values, and within the limited resources available. There are other challenges facing communities seeking to apply evidence. Research, practice, and policy have usually been constructed to affect the entire population without specific attention to differential effects on women and men or various subgroups such as Aboriginal men or teen girls. As such, evidence is usually lacking on the impact of population-level policies on many subpopulations, as well as for targeted approaches that address vulnerabilities specific to diverse groups of women and men (adapted from *Every Door Is the Right Door, A British Columbia Planning Framework to Address Problematic Substance Use and Addiction*).

Herd Immunity: Vaccination acts to slow the spread of the disease, slowing or preventing further transmission of the disease to others. Virologists have found that when a certain percentage of a population is vaccinated, the spread of the disease is effectively stopped—thus the concept of "herd immunity". This critical percentage depends on the disease and the vaccine.

Inter-disciplinary: "Interdisciplinary collaboration refers to the positive interaction of two or more health professionals, who bring their unique skills and knowledge, to assist patients/clients and families with their health decisions" (Canadian Association of Occupational Therapists, 2005, as cited in Enhancing Interdisciplinary Collaboration in Primary Care Initiative, 2006).

Interdisciplinary practice can best be understood as part of a continuum from unidisciplinary practice to transdisciplinary practice as defined below:

- "Unidisciplinary practice involves functioning in isolation from members of other disciplines.
- Intradisciplinary practice involves the contributions of different specialists within one discipline (such as physician consultations).
- Multidisciplinary practice refers to a clinical group whose members each practice with an awareness and toleration of other disciplines.
- Interdisciplinary practice is an integrated approach in which members of a clinical team actively coordinate care and services across disciplines.
- Transdisciplinary practice involves team members from different disciplines who share knowledge and skills; as a result, the traditional boundaries between professions become less rigid, allowing members of the team to work on problems not typically encountered or seen as the responsibility of their discipline" (Ray, 1998, p. 1369).

Knowledge brokering: Knowledge brokering links researchers and decision makers together, facilitating their interaction so that they are able to better understand each other's goals and professional culture, influence each other's work, forge new partnerships, and use research-based evidence. Brokering is ultimately about supporting evidence-based decision-making in the organization, management, and delivery of health services.

The study and organization of knowledge brokering is an emerging activity in the field of knowledge exchange, intended to encourage and facilitate knowledge exchange and embed it into the operational culture of the health services field (Canadian Health Services Research Foundation, n.d.).

Population Health: An approach to health that aims to improve the health of the entire population and to reduce health inequities among population groups. In order to reach these objectives, it looks at and acts upon the broad range of factors and conditions that have a strong influence on our health (Chronic Disease Prevention Alliance of Canada, n.d.; Public Health Agency of Canada, n.d.).

Population Health Approach: This approach recognizes that health is a capacity or resource rather than a state, a definition which corresponds more to the notion of being able to pursue one's goals, to acquire skills and education, and to grow. This broader notion of health recognizes the range of social, economic and physical environmental factors that contribute to health. The best articulation of this concept of health is "the capacity of people to adapt to, respond to, or control life's challenges and changes" (Frankish et al, 1996; Public Health Agency of Canada, n.d.). [10]

End notes

1 Core Public Health Functions will strengthen public health and improve population health in BC by identifying the key public health services that health authorities provide and strengthening the link between public health, primary care, and chronic disease management. Core Public Health Functions are targeted to four general areas: health improvement; disease, disability, and injury prevention; environmental health; or emergency management. The implementation process will unfold over several years through to 2010. Developing information systems to meet the need of core programs will likely continue throughout that period and beyond. Revision and updating of evidence reviews, ongoing revisions of performance plans, and reporting on performance is expected to constitute a continuous performance improvement process into the foreseeable future. Public health professionals who have responsibility for immunization programs in BC are involved in the ongoing development and implementation of Core Public Health Functions. Core functions framework available at www.health.gov.bc.ca/prevent/index.html

2 Public health legislation is a cornerstone of effective public health action. The existing *Health Act* was incrementally developed over more than 100 years, resulting in outdated and fragmented legislation. To effectively serve public health now and in the future, the *Health Act* is being renewed to be comprehensive and flexible and to provide the public health system with modern legislative tools. This project will rejuvenate and strengthen the existing legislation to support and facilitate optimal public health services, and promote the best possible health outcomes for British Columbians and visitors to the province.

3 Data needs to be interpreted with caution as it is incomplete. Differing practices exist across and within health authorities regarding delivery of immunization services and the tracking of immunization records. Consequently, this data does not include all health authorities (Fraser and Vancouver Coastal excluded). The BCCDC has been given the responsibility for data collection and is developing new reporting methodology to standardize and improve data quality.

4 Source: British Columbia Centre for Disease Control. (2006). Communicable Disease Control Immunization Program, PeopleSoft. Vancouver, BC: Author.

5 Inter-provincial standard ward rate for a community hospital. Source: Health Information Support Division, Knowledge Management and Technology Division, Ministry of Health

6 See www.healthservices.gov.bc.ca/cpa/publications/ehealth_framework.pdf. Accessed November 22, 2006.

7 See Glossary page 35.

[8] 'Robust' refers to a system that performs well not only under ordinary conditions but also under unusual conditions.

[9] For more information visit Health Canada, Population Health, Determinants of Health, at www.phac-aspc.gc.ca/ph-sp/phdd/determinants/#determinants. Accessed: November 22, 2006.

[10] For more information on the Population Health Approach, please refer to the Population Health Template at www.phac-aspc.gc.ca/ph-sp/phdd/pdf/overview_handout_colour.pdf. Accessed: November 22, 2006.

Appendix A – Roles and Responsibilities

Responsibility for the immunization program is shared between the Ministry of Health, British Columbia Centre for Disease Control (BCCDC), health authorities, and ultimately all British Columbians. While there are many players whose involvement is key to an effective immunization, families and individuals form the cornerstone of a successful program, while broader efforts across government and society address the social determinants of health.

Individuals and Families

- have up-to-date knowledge
- manage their own health

The Community

(Local governments, Aboriginal communities, agencies, business and employer organizations)
- knowledge increase, developing policies and programs that promote healthy behaviours

Immunization Providers

(Public Health Nurses, Physicians, Nurse Practitioners)
- health promotion, disease prevention (case management/surveillance of active cases)
- service delivery

Health Authorities

- planning, delivery, and evaluation of preventive health services
working with regional (other health authority/provincial/university)
and local (community) partners

BC Centre for Disease Control

(surveillance and response, applied research, disease prevention and control, vaccine
management, infrastructure, and training
- management of immunization program service delivery

BC Immunization Sub-Committee

- facilitates coordination between all parties involved in delivering immunization in BC

Ministry of Health

- stewardship for the health care system, including leadership and support
- sets strategic direction for the health system, provides appropriate
legislative and regulatory frameworks, plans for capacity
- monitors the health of the population

Provincial Government

works across all ministries to bring about improvements in the social determinants of health
- children in care (Ministry of Children and Family Development), inmates (BC Corrections Branch)

Federal Departments and Agencies

- works with the provinces and territories to promote and protect the health of Canadians
(Health Canada, Public Health Association of Canada, First Nations and Inuit Health)
- provides ongoing and timely medical, scientific, and public health advice
(National Advisory Committee on Immunization, Canadian Immunization Committee)

- Evidence-based health policy, planning, delivery, and evaluation of vaccine and immunization services

INDIVIDUALS AND FAMILIES

Individuals and families play a critical role in an effective immunization program. Ongoing reduction in the number of vaccine-preventable diseases depends on individuals and families having the knowledge and ability to manage their own health. This includes individuals working with health care providers to access information regarding available vaccines, and ensuring vaccinations are up-to-date. The social support provided by family, friends, and peers can play an important role in individuals making decisions about immunization. Because immunization is so important to the health of families, individual and family knowledge about, involvement in, and valuing of, immunization is a cornerstone intervention critical to the ongoing success of the program. Ongoing effective, responsive policies and program design and delivery depend on individuals and families having opportunities to provide input into program design and delivery.

THE COMMUNITY

Local governments, community agencies, and business and employer organizations, while not directly involved in providing immunization services, can play an important role in helping the health care system to achieve better immunization results. Actions can range from becoming knowledgeable about immunization safety and necessity, to developing policies and programs that promote healthy behaviours.

Aboriginal communities work with the First Nations and Inuit Health, Health Canada, to provide services to on-reserve members. Aboriginal communities may also work with their local health authorities to provide services to their members.

IMMUNIZATION PROVIDERS

Immunization providers play a critical role in promoting immunization, providing up-to-date knowledge to individuals so they may make informed decisions, and providing immunization services.

Immunization services are delivered by the health authorities through a mixed-delivery system consisting of public health nurses, physicians, and nurse practitioners. Services are also provided by practitioners working in the community and through health care facilities such as residential care homes. The benefit of the mixed-delivery system is that it allows for flexibility to meet regional circumstances. As a result, the degree of mix varies between health authorities, with rural areas relying primarily on public health delivery and urban areas using the mixed model.

HEALTH AUTHORITIES

Immunization is an essential or "core" service that must be provided in each region of the province. Health authorities have the most immediate role to play in delivering immunization service either directly through their own staff or in collaboration with community physicians. Within each health authority, the medical health officer has the legislated authority for the prevention and control of communicable diseases in the community. Public health nurses aim to ensure that good immunization practices are maintained and that immunization goals are achieved. In addition, health authorities collaborate with the BCCDC in carrying out vaccine management, surveillance, and research.

British Columbia has six health authorities: Fraser, Interior, Northern, Vancouver Coastal, Vancouver Island, and the Provincial Health Services Authority.

BRITISH COLUMBIA CENTRE FOR DISEASE CONTROL

The BCCDC, an agency of the Provincial Health Services Authority, provides surveillance and response, applied research, disease prevention and control, vaccine management, and infrastructure and training. The BCCDC is responsible for the management of immunization programs (planning, organizing, budgeting, supervising, coordinating, directing, monitoring, and evaluating) to ensure the fiscally responsible expenditure of provincial funds and to implement immunization-related activities appropriately. The BCCDC plays an important role in providing information to health authorities that is essential for optimal service delivery and accountability for outcomes.

BC IMMUNIZATION SUB-COMMITTEE

The BC Immunization Sub-Committee (BCISC) facilitates coordination between all parties involved in delivering immunization in BC. It does not replace the mandate of service partners and their routine work to support and/or delivery effective immunization programs in BC.

The BCISC has representation from the Ministry of Health, health authorities, the BCCDC, First Nations and Inuit Health, Health Officers' Council, infectious disease specialists, and family physicians. It is a sub-committee of the Communicable Disease Policy Advisory Committee which is mandated to establish priorities for communicable disease control in BC based on best available scientific evidence and recommendations of national and international expert groups. For more information on the BCISC, please refer to Appendix E.

MINISTRY OF HEALTH

As stewards of the health system, the Ministry provides leadership and support to health system partners, including health authorities, physicians, and other care providers. Stewardship can be described as a "...function of government responsible for the welfare of populations and concerned about the trust and legitimacy with which its actions are viewed by the general public" (Saltman & Tenbusser, 2000). The Ministry sets the overall strategic direction for the health system, provides the appropriate legislative and regulatory frameworks to allow it to function smoothly, and plans for the future supply and use of health professionals, technology, and facilities. The Ministry also monitors the health of the population and plans for and coordinates responses to major public health risks and emergencies.

The Ministry works to ensure a consistent level of service quality across the regions with no significant service gaps. It also evaluates health system performance, and takes corrective action where necessary to ensure the population's health needs are being met. The Ministry of Health works in partnership with the BCCDC, health authorities, and primary care physicians to deliver immunization services in BC.

The Ministry also plays a key role in supporting health authorities to link the interconnecting elements of other strategic initiatives, including British Columbia's *e-Health Strategic Framework*, *Healthy Pathways Forwards: A Strategic Approach to Viral Hepatitis in British Columbia*, and the Ministry of Health's directional document on *HIV/AIDS—Priorities for Action*.

PROVINCIAL GOVERNMENT

The provincial government works across a number of ministries to bring about improvements in the social determinants of health. In addition to the Ministry of Health, other provincial ministries have an important role to play in the prevention and treatment of vaccine-preventable disease. For example, immunization for children in care is the responsibility of the Ministry of Children and Family Development, and immunization for incarcerated individuals falls to the BC Corrections Branch. The Ministry of Education also plays a crucial role, as many childhood vaccination programs are delivered through the school system.

FEDERAL DEPARTMENTS AND AGENCIES

At the national level, the ***Public Health Agency of Canada*** works with the provinces and territories to promote and protect the health of Canadians. A significant part of its mandate is to decrease the transmission of infectious diseases and to improve the health status of those infected. Through the Centre for Infectious Disease Prevention and Control, surveillance and epidemiology, risk management, research including laboratory science, health promotion, public health policy development and prevention and care programs are delivered.

The ***National Advisory Committee on Immunization (NACI)***, a national committee of recognized experts in the fields of pediatrics, infectious diseases, immunology, medical microbiology, internal medicine, and public health is mandated by the Chief Public Health Officer of Canada to provide ongoing and timely medical, scientific, and public health advice. NACI makes recommendations for the use of newly licensed and current vaccines in Canada, including the identification of groups at risk for vaccine-preventable disease. All NACI recommendations on vaccine use in Canada are published every four years in the Canadian Immunization Guide. Additional reports and updates are published in the *Canada Communicable Disease Report*. NACI also advises on the involvement of the National Immunization Strategy and makes recommendations for vaccine development research.

Service delivery to on-reserve Aboriginal communities is the responsibility of ***Health Canada***. Services are delivered by ***First Nations and Inuit Health*** or by the communities themselves. In some areas, Aboriginal communities work with the local health authority's public health nurses to fulfill these services.

Citizenship and Immigration Canada is responsible for assessing the health status of refugees and immigrants prior to their arrival in Canada. In addition, they provide information and support as these individuals transition toward citizenship. As such, Citizenship and Immigration Canada can play a pivotal role in screening and early detection of disease, and offering public health information to ensure people are aware of what vaccine-preventable diseases are currently covered by the immunization schedules, and where help is available.

Appendix B – List of Consultation Forum Participants

During early 2006, consultations were held in nine communities across BC. Sessions were held with health authority front-line and management staff and representatives from external organizations including the Aboriginal community, Citizenship and Immigration Canada, family physicians, First Nations and Inuit Health, and BC Corrections Branch. In total over 130 individuals participated in consultations.

Consultation participants provided the project team with numerous ideas and suggestions. Feedback was recorded and common themes were incorporated into the strategic framework.

The project team wishes to extend its sincere appreciation to all those who participated in the consultations, sharing their commitment, energy, and enthusiasm. We apologize for any errors or omissions in the participants listed below.

Project Team

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Cindy Anderson
Eileen Bourassa
Hayley Anglin
Jennifer Williams
Lynn West
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Lisa Jarvos
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Vicki Conn
Cally Chi
Crystal Salter
Donna Martyniuk
Helen Braun
Karen Roth
Loa Vandenberg
Nan Huth
Penny Robertson
Shelley Nienhuis
Cathy Stewart
Debbie Wickstrom
Gillian Arsenault
Jacqueline Dydzuk
Linda Cindrich
Manjit Sahota
Mary-Anne MacDonald
Sharon Johal
Terri Amos

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David Clellamin
Lillian George
Deborah Schwartz
Sandra Greene
Grace Tait

First Nations and Inuit Health (Vancouver and web conference)

Candace Corston
Lorraine Harry
Elizabeth Flanders
Phyllis Jorgenson
Karen McColgan
Sophie Staley (PHAC)

BC Corrections Branch (Victoria)

Dr. Diane Rothon
Jove Morris

Citizenship and Immigration Canada (Vancouver)

Carillon Kinley
Nadine Gomm

Physicians Focus Group (Vancouver and web conference)

Dr. Len Rix
Dr. Janis McCaffrey
Dr. Reka Gustafson
Dr. Colleen Kirkham
Dr. Jim Thorsteinson
Dr. Sandra Hrowatar
Dr. Jane Donaldson

Appendix C – Immunization Logic Model

Mission: To improve the health of British Columbians by continuing to reduce the incidence of vaccine preventable diseases and the associated impact of disease, disability, and death.				
Goals	**Objectives**	**Short-term Outcomes**	**Long-Term Outcomes**	**Progress Indicators**
Increase the uptake of current and future recommended vaccines to reach select provincial and National Immunization Strategy targets by 2010	To communicate a commonly held vision about the importance and strategic objectives of the immunization program shared across the immunization system, with internal and external partners and the public. To encourage British Columbians to view immunization as an essential part of healthy living and have confidence in the program. To improve access to immunization services. To meet provincial coverage targets to reduce the burden of vaccine-preventable diseases and retain rates to prevent disease resurgence.	Public and stakeholders are fully informed about the value of immunization for protecting themselves, their families and vulnerable members of the community against vaccine preventable diseases. There are more options for receiving immunizations.	Public seek vaccinations for themselves and family members. Public and stakeholders promote immunization as the best defense against vaccine preventable diseases. Reduced incidence of vaccine preventable diseases. Sustained reduction of disease rates for the long term and newly introduced vaccine programs.	Increased demand for vaccination. Vaccinations offered at more locations and by more providers. Targets set provincially and at regional level.
Ensure the BC Immunization Program is supported by the most current evidence-based information on the status of vaccine-preventable infectious diseases in British Columbia and on emerging sources of infectious disease risk from other parts of the world	To strengthen the flow, quality and appropriate use of immunization program information to support health workers and planners to plan and deliver services more effectively and efficiently and to support clients to have appropriate access to information. To create a single registry or system of interconnected registries that can support all program functions and allows for information to be shared provincially and nationally. To enhance public health surveillance systems and processes to collect, analyze and disseminate information to those who need to know in order that action may be taken.	Decision makers have information to set priorities. Programs and services are reviewed and adapted based on improved information. Routine reporting of VPD surveillance & coverage rates.	Immunization information can be shared provincially and nationally. Clients have access to their records. Resources are deployed more effectively and result in targets being achieved. Majority of providers use the VIS.	Program information is used to support decision-making. A registry is in place.

Goals	Objectives	Short-term Outcomes	Long-Term Outcomes	Progress Indicators
To build the capacity of the immunization program to ensure long-term sustainability	To ensure the legislation and regulations are in place to clearly articulate the mandate, authority of the immunization program and support its effective delivery. To ensure the immunization program is well defined, its components clearly articulated, roles and responsibilities understood and championed across the health system by all, and success criteria identified. To seek confirmed investment in the system and ensure funding is aligned to achieving the priority objectives. To have sufficient, qualified providers to meet current and future immunization program demands in an interdisciplinary service system. To ensure all persons involved in the delivery of publicly funded immunizations programs have the knowledge and skill to perform up to date practice. To enhance partners' capacity to promote the benefits of immunization across the spectrum of health services planning and delivery functions.	All partners understand their roles and responsibilities and act accordingly. There is agreement about funding priorities. Increased number of qualified providers who have received appropriate education and training. A promotion platform known and used by all partners.		Changes to legislation and/or regulations support program delivery. New funding implemented according to agreed priorities.
To promote quality across the immunization system to achieve improved system performance	To ensure the systems are in place to continuously improve all immunization program components and business processes. To establish an immunization research agenda that includes the socio-cultural aspect of vaccine delivery and uptake. To ensure an adequate, stable, safe, timely, affordable vaccine supply through the successful negotiation of contracts, efficient vaccine ordering, and safe and timely management and delivery of vaccines. To create a seamless immunization program and delivery system capable of responding to routine and exceptional demand, by integrating immunization with other linked health interventions and surveillance in the health systems' context. To develop an evaluation framework and cycle to assess program delivery effectiveness and communicate to health care providers to assist them to improve practice as part of an annual reporting process.	Planners, service providers and decision makers agree on quality criteria. System can respond to surge demand. Reduced immunization errors.	Coordinated effective immunization program that meets the service needs of the public. Vaccine supply management and vaccine administration meet best practice standards. Outbreaks are handled as a routine activity. Findings from research program are translated into policy and program changes.	Steps have been taken to improve program delivery and business processes.

Appendix D – Immunization Guidelines and Provincial/Territorial Immunization Schedules

IMMUNIZATION GUIDELINES

The following guidelines are excerpted from the Canadian Immunization Guide, Sixth Edition, 2002. The updated guide is expected to be released in early 2007. The complete description of each guideline can be found at

www.phac-aspc.gc.ca/publicat/cig-gci/pdf/cdn_immuniz_guide-2002-6.pdf

Guideline 1: *Immunization services should be readily available.*

Guideline 2: *There should be no barriers or unnecessary prerequisites to the receipt of vaccines.*

Guideline 3: *Providers should use all clinical encounters to screen for needed vaccines and, when indicated, vaccinate children.*

Guideline 4: *Providers should educate parents in general terms about immunization.*

Guideline 5: *Providers should inform parents in specific terms about the risks and benefits of vaccines their child is to receive.*

Guideline 6: *Providers should recommend deferral or withholding of vaccines for true contra-indications only.*

Guideline 7: *Providers should administer all vaccine doses for which a child is eligible at the time of each visit.*

Guideline 8: *Providers should ensure that all vaccinations are accurately and completely recorded.*

Guideline 9: *Providers should maintain easily retrievable summaries of the vaccination records to facilitate age-appropriate vaccination.*

Guideline 10: *Providers should report clinically significant adverse events following vaccination – promptly, accurately, and completely.*

Guideline 11: *Providers should report all cases of vaccine-preventable diseases as required under provincial and territorial legislation.*

Guideline 12: *Providers should adhere to appropriate procedures for vaccine management.*

Guideline 13: *Providers should maintain up-to-date, easily retrievable protocols at all locations where vaccines are administered.*

Guideline 14: *Providers should be properly trained and maintain ongoing education regarding current immunization recommendations.*

Guideline 15: *Providers should operate a tracking system.*

Guideline 16: *Audits should be conducted in all immunization clinics to assess the quality of immunization records and assess immunization coverage levels.*

PROVINCIAL/TERRITORIAL IMMUNIZATION SCHEDULES

Publicly funded Immunization Programs in Canada - Routine Schedule for Infants and Children

This schedule can be found at www.phac-aspc.gc.ca/im/ptimprog-progimpt/table-1_e.html

Province/ Territory	DaPT	IPV	Hib	Td, dTap or Td/IPV	Hepatitis B	MMR	Varicella	Mening-ococcal Conju-gate	Pneumo-coccal Conju-gate	Influenza
NACI recom-mendation	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	14-16 yrs	Infancy (3 doses) or Pre-teen/teen	12 mths, 18m/4-6 yrs	Children between 12 & 18 mths	2, 4, 6 mths or 12 mths, if not yet given or 14-16 yrs, if not yet given	2, 4, 6, 12/15 mths	6-23 mths (1-2 doses)
BC	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 9	2,4,6 mths	12, 18 mths	12 mths	2, 12 mths	2,4,12 mths	6-23 mths
AB	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 9	Gr. 5	12 mths, 4-6 yrs	12 mths	2,4,6 mths	2,4,6,18 mths	6-23 mths
SK	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 8	Gr. 6	12, 18 mths	12 mths	12 mths	2,4,6,18 mths	6-23 mths
MB	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 9	Gr. 4	12 mths, 4-6 yrs	12 mths	Gr. 4	2,4,6,18 mths	6-23 mths
ON	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, 14-16 yrs	Gr. 7 (2 doses)	12, 18 mths	18 mths	12 mths	2,4,6,15 mths	6-35 mths
QC	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 9	Gr. 4	12, 18 mths	12 mths	12 mths	2,4,12 mths	6-23 mths
NB	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 9	0, 2, 6 mths	12, 18 mths	12 mths	12 mths	2,4,6,18 mths	6-23 mths
NS	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, 14-16 yrs	Gr. 4	12 mths, 4-6 yrs	12 mths	12 mths	2,4,6,18 mths	6-23 mths
PE	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 9	2,4,15 mths	15, 18 mths	12 mths	12 mths	2,4,6,18 mths	
NL	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 9	Gr. 4	12, 18 mths	12 mths	12 mths	2,4,6,18 mths	6-23 mths
NT	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 9	0, 1, 6 mths	12, 18 mths	12 mths	2,4 mths	2,4,6, 18 mths	6-23 mths
YT	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 9	2,4,12 mths, ≤19 yrs and not previously immu-nized	12, 18 mths		2,6 mths	2,4,6,18 mths	6-23 mths
ND	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths, 4-6 yrs	2,4,6,18 mths	dTap, Gr 9	0, 1, 6 mths	12, 18 mths	12 mths		2,4,6,15 mths	6-35 mths to 5 yrs

Appendix E – BC Immunization Sub-Committee Membership, Terms of Reference, and Relationship to BC Communicable Disease Policy Advisory Committee

MEMBERSHIP AS OF SEPTEMBER 30, 2006

Office of the Provincial Health Officer

Dr. Eric Young, Chair
Deputy Provincial Health Officer

Ministry of Health

Craig Thompson
Manager, Immunization Program

BC Centre for Disease Control

Dr. Monika Naus, Co-Chair
Associate Director Epidemiology

Karen Pielak
Nurse Epidemiologist

Cheryl McIntyre
Associate Nurse Epidemiologist

Andrea Derban
Vaccine Educator

Health Authorities

Christine Halpert
Communicable Disease Manager
Fraser Health

Bev Grunert
Communicable Disease Coordinator
Interior Health

Jill Walker
Public Health Nursing Manager
Northern Health

Linda Poirier
Communicable Disease Nurse Coordinator
Vancouver Coastal Health

Myrna Klein
Public Health Program Resource, Prevention Services
Vancouver Island Health Authority

First Nations & Inuit Health

Dr. Meena Dawar
Community Medicine Specialist

Karen McColgan
CD Nurse Coordinator

Dr. Leila Sraur,
Community Medicine Specialist, CD

Health Officers' Council

Dr. David Bowering, MHO
Northern Health

Dr. Reka Gustafson, MHO
Vancouver Coastal Health

Physician Representatives

Dr. Simon Dobson
Division of Infectious Diseases
BC Children's Hospital

Dr. Grant Stiver
Department of Medicine
Vancouver Hospital

Dr. Sandra Hirowatari,
BC College
of Family Physicians

BRITISH COLUMBIA COMMUNICABLE DISEASE POLICY ADVISORY COMMITTEE

British Columbia Communicable Disease Advisory Committee (CD Policy) is chaired by British Columbia's Provincial Health Officer. CD Policy reviews the science associated with communicable disease prevention and control, and through the chair makes recommendations to the Minister and the Ministry of Health on matters pertaining to communicable diseases. The British Columbia Immunization Sub-Committee reports to CD Policy or through the Provincial Health Officer to the Ministry of Health, on matters that are beyond its scope and mandate.

BRITISH COLUMBIA IMMUNIZATION SUB-COMMITTEE TERMS OF REFERENCE

Revised February 2007

MANDATE

The British Columbia Immunization Sub-Committee (BCISC) provides the structure to facilitate the coordination of the Ministry of Health, BC Centre for Disease Control (BCCDC), Health Authorities, and other key stakeholders' work related to the immunization program in British Columbia. The BCISC does not replace the mandate of service partners and their routine work to support and/or deliver effective immunization programs in British Columbia.

STRATEGIC OBJECTIVES

1. Facilitate and support the implementation of a provincial immunization strategy by providing critical input, analysis, and direction as required.

2. Provide recommendations to provincial service partners on critical issues that emerge and require provincial coordination and/or action.

3. Provide recommendations to CD Policy on the prioritization of new immunization programs. BCCDC's role will continue around the development of new immunization program proposals.

4. Facilitate the development of an immunization program implementation framework that includes goals, objectives, outcome measures, and performance indicators.

5. Liaise with the BC iPHIS Governance Council.

6. Liaise with other provincial and federal groups on the continuing development of the National Immunization Strategy.

7. Facilitate and support other initiatives as identified by the BCISC or the CD Policy Committee.

OPERATIONAL

Identify and prioritize system gaps within BC's immunization program and develop an annual immunization program work plan to advance the effort of the BCISC and facilitate the coordination of work among service partners.

Working groups related to immunization programs in British Columbia will report to the BCISC. The chair of the BCISC will report to the CD Policy Committee or the Ministry of Health, through the Office of the Provincial Health Officer, if the issue is beyond the scope and mandate of the BCISC.

The Priorities for Action, as outlined in the BC Immunization Strategic Framework describes the priorities of this Sub-Committee:

1. Promote the immunization program publicly and with health care professionals.

2. Improve access to immunization services.

3. Ensure an adequate supply of knowledgeable, trained service providers.

4. Create an integrated immunization registry.

5. Improve the vaccine inventory management system.

6. Establish an immunization research agenda that includes the socio-cultural aspects of vaccine delivery and uptake.

REPORTING

The BCISC reports to the CD Policy Committee via the Chair.

MEMBERSHIP

The BCISC will have 14 voting members that include the following:

1. Province—Ministry of Health (1 vote)
   - Manager, Immunization Programs, Communicable Disease Prevention

2. Province—Office of the Provincial Health Officer (1 vote)
   - Deputy Provincial Health Officer (co-chair)

3. BC Centre for Disease Control (2 votes)
   - Associate Director/physician epidemiologist (co-chair)
   - Manager, Immunization or Nurse Epidemiologist

4. Health Authorities (5 votes)
   - Public Health Nursing Representatives (one per health authority)

5. Medical Health Officers (2 votes)
   - Two medical health officers, rural and urban perspectives (Health Officers' Council to select)

6. Health Canada (1) vote
   - First Nations and Inuit Health—one Medical Health Officer or Immunization Nurse Manager

7. Physician organization representative (2 votes)
   - College of Family Physicians representative
   - Pediatrician or infectious disease specialist

CO-CHAIRS

To be elected by the voting members of the BCISC for a two-year term. BCISC current co-chairs are:
- Deputy Provincial Health Officer
- Associate Director, BC Centre for Disease Control

SECRETARIAT

BCISC Coordinator

TERM OF MEMBERSHIP

Minimum two years. If a member cannot make a meeting, they are encouraged to send a designate.

QUORUM/DECISION MAKING

A quorum will be ten or more persons.

Decisions will be made by consensus if there is a quorum present. If consensus cannot be reached in the meeting, then all of the committee's members will be polled and the vote must be $\geq$ 80 per cent to pass the resolution.

TERMS OF REFERENCE REVIEW

Reviewed annually or as required.

FREQUENCY OF MEETINGS

The BCISC will meet a minimum of three times a year. The Chair can call additional meetings, if required. Working groups initiated by the BCISC will meet as required and as resources permit in the BCISC budget.

Note: Other immunization working groups not initiated by the BCISC may be asked to report to and/or update the BCISC and/or the CD Policy Committee to coordinate provincial immunization issues. However, BCISC is not responsible for approving or managing the budget, terms of reference, or other operational issues for these working groups.

MINUTES

1. Circulate to all members.
2. Members are responsible for sharing minutes with their representative organizations. This will be facilitated through posting on PartnerNet.

EXPENSES

It is expected that member's expenses will be borne by their employers. Where members need to pay their own expenses, the Co-Chairs, at standard BCCDC rates, may reimburse them, with prior approval.

Consultants, who are solely on fee-for-service, will be paid an honorarium and expenses for meetings as per BCCDC's policy.

BUDGET

The Ministry of Health will provide BCCDC with a budget for immunization specific projects and meeting expenses of the BC Immunization Sub-Committee.

CONFLICT OF INTEREST

Members are expected to be aware of and abide by the conflict of interest policy of the CD Policy Advisory Committee.

MISCELLANEOUS

Other non-voting individuals can be invited to the BCISC's meetings to assist with specific issues with the Chair's approval

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